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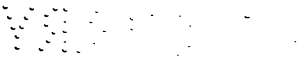

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1908

To

MY HOUSE PHYSICIANS

WHOSE INTEREST AND COLLABORATION

HAVE ENCOURAGED THE DEVELOPMENT AND

ARRANGEMENT OF THE MATTER SET

FORTH IN THE FOLLOWING

PAGES

38921

PREFACE

For who hath despised the day of small things?—*Zechariah* iv. 10.

THE change in the system of medical education some thirty years ago, whereby the custom of commencing as pupil to a medical man in general practice was abandoned in favour of proceeding straight from the course of general education to a medical school or university, has involved certain deficiencies in the knowledge of those so trained. Since the subjects of what might be regarded as trifling disorders either do not present themselves at a hospital or are intercepted in the casualty department in order to spare the time and energy of the visiting staff, the present-day student has little or no opportunity of familiarising himself with those slighter maladies which are likely to be among the first encountered when he commences practice. This is no doubt accentuated by the natural tendency of students to concentrate their attention on those organic diseases which are mostly inquired about at examinations and to interest themselves in rare diseases, complex or extensive operations, and questions of higher research—matters of the utmost importance in regard to the progress of medicine, but with which those who are occupied in family practice, and who constitute perhaps ninety per cent. of the profession, are comparatively rarely directly concerned, at all events in early years. It is

in the hope of conveying some information, and of arousing interest in the sphere of Minor Medicine, that the present small volume has been written.

My grateful acknowledgments are due to Mr. G. S. Hughes for help and suggestions in revising the proofs and preparing the index.

W. ESSEX WYNTER.

27, Wimpole Street,
Cavendish Square, W.
September 2, 1907.

CONTENTS

CHAPTER I

PAGE

THE DIGESTIVE SYSTEM 1

CHAPTER II

DISEASES OF THE SKIN 48

CHAPTER III

THE RESPIRATORY SYSTEM 88

CHAPTER IV

NERVOUS SYSTEM 111

CHAPTER V

THE CIRCULATORY SYSTEM 148

CHAPTER VI

THE MUSCULAR SYSTEM 164

PAGE

CHAPTER VII

SPECIAL SUBJECTS 174

CHAPTER VIII

MAINTENANCE OF INDIVIDUAL HEALTH 199

CHAPTER IX

DIET 215

FORMULÆ 250

INDEX 268

MINOR MEDICINE

CHAPTER I

THE DIGESTIVE SYSTEM

In considering minor disorders of the digestive system, it is often extremely difficult to allocate definitely the trouble in any particular organ, subjective symptoms affording very insecure ground for such discrimination, and the several processes involved being so closely interwoven that irregularity in one may produce even more conspicuous disturbance of another, and some comprehensive feature, such as portal congestion, may affect several at once.

Under the term **"Liver"** are popularly grouped such features as flatulence, dyspepsia, and constipation, due to excesses in diet or stimulants, which really indicate the presence of catarrh, congestion or subacute inflammation in the stomach or intestine; while the occurrence of slight jaundice, clouded complexion, and mental depression are probably due to constipation or to some interference with the free flow or elimination of bile, resulting from catarrh of the ducts, and the resorption of this fluid with crude or toxic constituents into the general circulation.

Headache, giddiness, malaise, muscular debility, mental depression, and irritability indicate the effect of

such toxines on the nervous system; while piles, weight in the right hypochondrium, and pain about the right shoulder-blade may be due to congestion of the liver or even slight hepatitis, shoulder pain being referred through the connections of the splanchnics with the lower six dorsal nerves.

The activity and reserve power of the liver doubtless vary in different individuals, as do their capacities in other directions. The influence of habit and idiosyncrasy is also marked. Moreover, functions that can be relied on in certain conditions of health, activity, and period of life may prove totally inadequate in others—as when a diet of beef and beer agrees well with a man enjoying a vigorous country life, but will not suit the same individual in the physically less active existence of town, or when years have diminished the efficiency of his organs. Climate and season, too, exert a powerful influence in the balance between the character and quantity of food and the functional capacity of the digestive organs, so that what is necessary and suitable in some circumstances may prove actually injurious in others.

A Bilious Attack usually comes on in the morning, often after a disturbed night in which sleep is broken or attended by dreams of a depressing or terrifying nature. This may follow on an extraordinary repast, sometimes a meal which has been accompanied by emotional disturbance, or taken hurriedly or when overfatigued. Sometimes it occurs in hot or thundery weather, in an east wind, or in connection with a visit to the seaside. In some people even falling asleep soon after eating will bring on an attack; but to those who are predisposed, any or no cause may be assigned. Such as are admitted, however, point to arrested or disturbed digestion, associated with disordered secretion and probably toxic fermentation.

The first symptoms noticed are malaise, headache, and disturbance of temper, the merest trifles causing great

irritation or unreasonable depression ; there may be also vertigo, muscæ volitantes, muscular debility, and entire lack of interest or ability to fix the attention. The healthy colour of the skin is replaced by a muddy pallor, with dark rings round the eyes and dryness of the skin and hair.

Appetite is lost, and there is commonly nausea ; if an attempt is made to eat, food tastes bitter and unpalatable, disapprobation being extended to the cook. Even if the morning meal has been restricted to tea and toast, it usually disagrees, giving rise to flatulence and discomfort, and is very commonly rejected, the vomit including some portion or the whole of the meal taken overnight, accompanied by a good deal of mucus with bile, which may be green or yellow, having an acrid, bitter taste.

The act of retching is preceded, accompanied, and followed by nausea and prostration with cold sweats, the patient feeling at this stage as miserable as possible. Diarrhœa or constipation may follow, while the other symptoms continue through the day, totally unfitting the individual for any sort of occupation or amusement, so that he generally chooses to remain in bed or sit in a darkened room, alternately dozing and concerning himself with the exigencies of his disorder.

As to the pathology of this condition, only inferences can be drawn, as no ocular demonstration of the state of the viscera is obtainable. Two features, however, appear to be definite, and constantly present. One is that the digestive apparatus is on strike, as may be deduced from the complete anorexia, the arrest of digestive processes, and the absence or inversion of peristalsis, resulting in vomiting and regurgitation of bile through the pylorus. The other is the presence of catarrh, quantities of mucus being thrown up with the undigested food, or independently by retching. In the absence of the normal secretions and functional activity there is undoubtedly a vast increase in micro-organisms associated with morbid

fermentation, producing lactic and butyric acids and other unwholesome products, which induce the nervous and other symptoms attributed to toxic absorption. A bilious attack is therefore to be regarded as a transient catarrh of the gastro-duodenal area, associated with arrest of the digestive function and the development of morbid products of fermentation and perverted digestion, which are absorbed into the circulation unchanged, owing to the protective action of the liver being suspended.

It is appropriate to recall in this connection some features of the bile and its circulation. When a biliary fistula is established, it is noticed that there is at first a copious escape of that fluid, but in the course of a few days the quantity diminishes greatly, and moreover the amount secreted varies from day to day, from which it is inferred that the bile secretion and with it the functional activity of the liver is not uniform, and that a condition which has been termed torpidity of the liver may exist.

The falling off in the quantity and depth of colour of the bile as a result of continual escape through a fistula is evidence that a large portion of the natural secretion, under normal conditions, is reabsorbed with the products of digestion: in the case of fats it is, indeed, the vehicle by which they are taken up into the circulation, the bile being returned into the intestine again and again. Thus the liver provides afresh perhaps not more than a tenth part of that which is daily passed through the ducts, nine-tenths being old bile returned from the liver to be used again.

This aspect of the bile circulation to and fro between the liver and intestine suggests another cause of bilious attacks, which is independent of external influences, such as have been suggested—that is, the cumulative effect of toxic products of imperfect digestion; the stale bile becoming more and more deeply charged with them, when the bowels are not acting efficiently, and they are not

eliminated. For it need not be supposed that the protective action of the liver, as exemplified after the ingestion of snake venom and other poisons, is entirely due to complete destruction of these substances, but rather to their return to the intestine, whence in the course of time they are evacuated. So long as they are prohibited access to the general circulation by the selective if not destructive power of the liver cells, the organism is safe, and the beneficial influence of purgatives, in these and allied circumstances, substantiates this view, as does the elimination by the bowel of such metallic poisons as lead, assisted by the same agency.

Another point worthy of consideration in connection with temporary derangements in which the liver is directly or indirectly concerned is the peculiar character of the portal circulation. Nowhere else in the body except in the kidney do we find a double capillary system interposed between the afferent and efferent vessels, and the disadvantage of the arrangement from a circulatory point of view is demonstrated by the constant failure of these two systems in chronic cardiac disease, resulting in the one case in ascites and in the other in anasarca, while the functions of the organs are seriously disturbed. When the circulation through an ordinary capillary is watched and the variation in rate of flow with the systole and diastole of the heart is observed, it must be realised how great is the disadvantage in the portal capillaries with no such *vis a tergo* behind them, but only thin-coated valveless veins peculiarly liable to variations in calibre, and relatively unsupported by surrounding tissues, while they are exposed to gross variations in pressure as exercised by the abdominal muscles and the diaphragm, and to the influence of the nervous system, as in shock or collapse.

Dilatation of the portal vein and its tributaries no doubt allows of the accumulation of the products of

digestion in the intervals of meals, and of their gradual subjection to the action of the liver, the portal system acting as a reservoir, thus assisting in converting nutrition from an intermittent into a continuous process. These reflections would lead one to the conclusion that great variations in the rate of the portal circulation are possible, both with and independently of the process of digestion, the nutrition of the liver cells and tissues being independently provided for by the hepatic artery.

The usual treatment adopted during these crises and its success are fully in accord with these views. It consists (i) in relieving the system by starvation and purgatives or even emetics, though in acute attacks vomiting occurs spontaneously; (ii) in aiding the elimination of toxic material by diluents; and (iii) in controlling the local fermentation changes by antiseptics.

Practically these results are obtained by the use of mercurial and saline purgatives, abstinence from food, and drinking freely of some alkaline aërated water.

The mercurial preparations commonly employed are calomel, grey powder, or blue pill in doses of gr. ij–iv, given preferably at night. A very convenient and effective pill is composed as follows:

℞. Pil. Hydrarg. . . . . gr. iij
Ext. Aloes . . . . . gr. j
Ext. Hyoscyam. . . . . gr. j

or in a mild case a compound rhubarb pill will suffice. It is usual with mercury to administer a saline draught in the morning to ensure active clearance of the bowel. The ordinary black draught, a seidlitz powder, or a sufficient dose of one of the aperient mineral waters such as Condal, Hunyadi, Apenta, or Friedrichsall, or a drachm or two of sulphate of soda or magnesia, answer very well, Besides drug treatment, however, it is well to advise the patient to do without food for

twenty-four hours, or even longer should recovery be delayed. Milk may be given in small quantities, and perhaps a little soup or beef tea, but the less the better, and the inclination is usually entirely wanting, so that abstinence is less difficult. As improvement occurs, the milk may be given hot with arrowroot, Revalenta arabica, or cornflour, and junket and blancmange may be added. In regard to drinking the case is different; if there is vomiting there will be thirst, and in any case the mouth is uncomfortable. Mineral waters simply aërated, such as Seltzer, Salutaris, or Perrier water, may be taken; the addition of a little fresh lemon is agreeable and refreshing to the mouth, but it does not consort well with the milk and should not be taken in too close proximity with it.

Alkaline waters have the advantage in assisting to liberate the mucus of which there is an excess in the stomach, and of reducing any acidity; the most popular are Potash or Soda, Apollinaris and Vichy. The addition of sulphate of soda or magnesia in the proportion of a drachm to the pint where the bowels are not loose is useful, though it does not improve the taste.

Stimulants are to be avoided, that is to say, alcohol in any form makes matters worse. If there is great prostration and depression, carbonate of ammonia in doses of 10 grains added to nearly a tumblerful of milk is useful. Acute attacks usually pass off in twenty-four hours or so, and may not be so bad as to completely disable the patient from attending to minor affairs; moreover, if experience has taught him to foretell or expect a paroxysm overnight, he may anticipate the treatment as well as the disorder, and, by taking the remedies prescribed above at once, may prevent the attack or cut it short. Though, in most cases, of infrequent and irregular occurrence, some individuals are subject to bilious attacks at intervals of a few days, scarcely passing

a whole week without symptoms, and in such the treatment should correspond, being adopted once or twice a week, though possibly in a modified form. For instance, the mercurial may be reduced to one-tenth of a grain of calomel as a lozenge twice or three times in the course of the day, followed by compound liquorice powder; or a pill, composed of a quarter of a grain each of iridin, euonymin, and podophyllin, may be substituted, with prepared Carlsbad salts, which should be taken several mornings in succession and at such intervals as may correspond with the recurrence of the disorder, once a month being sometimes sufficient. When very persistent and disabling, a course of treatment at one of the special watering-places is to be recommended, where the routine life, limited diet, and appropriate salts diluted with large quantities of water are combined with moderate exercise and quiet amusement.

Besides these acute attacks, which usually provide their own cure by loss of appetite, vomiting, and diarrhœa, there appears to be a subacute and more prolonged condition of the same kind, known in the vernacular as the **"Blues."** This consists of a group of symptoms including mental depression, irritability, vacillation, and inability to fix attention or take any interest in the usual occupations or amusements; there is generally loss of appetite, but sometimes morbid hunger; the ingestion of food, however, not being attended with satisfaction and being commonly followed by some symptoms of indigestion. It may last two or three days, and either pass off or culminate in a regular bilious attack. Headache, cutaneous irritation, an unhealthy aspect of the skin and conjunctiva, and constipation with high-coloured urine, often loaded with urates coexist, and appear to depend, as in the former conditions, upon the accumulation of digestive by-products and defective renewal of bile; there is possibly also some catarrh of the stomach and

duodenum with retardation of the portal circulation. Drowsiness in the day and unsatisfactory sleep at night are also common features of the complaint, which is apt to supervene on loss of accustomed exercise or too close adhesion to routine life, perhaps combined with relative excess in eating and drinking. The remedies suggested in the foregoing paragraph are equally effective here, but need not be quite so drastic. The compound rhubarb pill two or three nights in succession, the blue pill with aloes and hyoscyamus or gr. j–ij of calomel, followed by a saline such as citrate of magnesia in the morning, with a limited farinaceous diet and a more free use of either plain water or one of the mineral waters usually suffice. The plan of drinking a tumblerful of hot water an hour before each meal so as to wash out the stomach and upper part of the intestine is beneficial.

A Chill on the Liver.—This is a diagnosis commonly made by the patient and possibly accepted by the medical man as a doubtful entity. As in most functional derangements, there are no definite objective symptoms, but the subjective ones are numerous and are similar to those already enumerated. The mental depression and loss of physical energy are more marked, and a sense of weight, discomfort, or pain is complained of in the right hypochondrium and epigastrium, and at the back under the shoulder-blade or in the interscapular region. There is a tendency to coldness of the extremities and the face often has an ashy colour and pinched look. The bowels are constipated, the urine scanty and loaded with lithates, appetite is lacking, and digestion attended with discomfort. Some dilatation of anal veins may occur. The duration of this state when untreated is indefinite unless dispelled by change of atmosphere or climate, continuing two or three weeks or even a month. The onset appears to be determined by cold and inactivity, and is often associated with the prevalence of a north-east wind, sedentary

occupation in a cold room, or a long railway journey. Here, again, the pathology is only a matter of inference, but both cause and effect are in accord with the supposition that there is congestion of the portal system with slowing of the circulation through the liver and chronic catarrh of the mucous membrane of the digestive tract.

The most effective treatment in addition to measures for unloading the abdominal venous system and adapting nourishment to a diminished digestive capacity, as in the former disorders, is the application of external heat, which is best applied as a hot-water or Turkish bath, prolonged beyond the ordinary time on three or four days in succession, the skin being thoroughly reddened and perspiration encouraged. As a sense of chilliness is a feature of the disorder, this is agreeable, and an immediate sense of relief follows, but repetition is necessary to ensure permanence, and anything in the form of cold douche should be omitted. In spite of the low spirits alcoholic stimulants are to be avoided, except in the form of hot spirit and water at night to promote the action of the skin on going to bed. Carbonate of ammonia or sal volatile in fairly full doses well diluted, as in a glass of milk, may be taken during the day.

Flatulence (Tympanites).—The condition of gaseous distension in the digestive tract is a very common one, and leads to great discomfort and even danger by disturbance of the respiration and circulation, through upward displacement of the diaphragm and embarrassment of the thoracic viscera, but even more by interfering with the propulsion of the intestinal contents and inducing actual obstruction. Kinking and volvulus, or twisting of the gut, has supervened on this distension, and it is often the exciting cause of the onset of the symptoms in patients with obstructive lesions.

Mere confinement to bed in those unaccustomed to sickness, or invalid diet, may cause this distressing

symptom, which is variously alluded to as tympanites or meteorism. The same may result from the action of purgatives, and it is also found in many diseases, especially typhoid fever, and as an after-effect of abdominal operations.

The accumulation of gas may be limited to the stomach or colon, or may be generally distributed throughout the digestive tract. Sometimes it appears to be due rather to paralysis and relaxation of the muscular walls of the gut or abdomen than to the actually increased pressure within, and its rapid occurrence marks the last stage of acute and fatal illness. This is especially the case in unfavourable issues in pneumonia and other acute diseases, or in collapse after severe injury or operation. Observant nurses have been wont to note how in such instances liquids ingested appear to fall direct into the stomach with an audible gurgle or splash instead of being grasped by the gullet and swallowed in the ordinary way, and they correctly anticipate a speedily fatal event.

The rapid extension of the area of stomach resonance till it actually reaches the pubes corresponds with the previous observation; and whether limited to the stomach or involving the intestines, such rapid development of gaseous distension, associated as it is with profound nervous prostration, is of the gravest augury. As a concomitant of acute and chronic intestinal obstruction and peritonitis this symptom is only too familiar, and is one of the chief bars to recovery after operation.

In such desperate and critical conditions which commonly preclude the administration of remedies by the mouth, recourse must be had to the subcutaneous injection of strychnine in paralytic or of atropine in spasmodic states. The introduction of an œsophageal tube by the mouth in acute gastric distension or by the rectum in that of the intestines has sometimes secured relief; other remedies which have been efficacious are the Enema

Terebinthinæ (ʒ iv with mucilage or barley water to ℥ vj), Enema Asafetidæ gr. xxx, and the Enema Rutæ ♏ xxx (diluted in the same manner). In a thin subject with coils of intestine visible through the abdominal wall, gas has been directly liberated by puncture with a fine trochar and canula, but such a proceeding has obvious risks.

In patients confined to bed the warmth and pressure afforded by a rubber or flat metal container filled with hot water are comforting and sometimes curative.

The occasions, however, which it is chiefly intended to allude to here are those either of acute attacks resulting from some departure from customary diet, or chronic or recurring attacks associated with the continued ingestion of unsuitable food, or other causes.

In the stomach flatulence is due to fermentation of carbohydrate or saccharine matters associated with delayed or disordered digestion, or when occurring immediately after a meal may result from direct liberation of gas from excess of carbonate of soda employed in the preparation of the food.

The effect of gastric distension is a feeling of tightness and fulness with actual bulging in the epigastrium and left hypochondrium, palpitation of the heart, a sense of oppression in the chest, and often flushing and burning in the face, some temporary relief being obtained at intervals by eructation. There is always hyperacidity of the gastric contents, and the regurgitation of acid fluid through the cardiac orifice may add the sensation of heartburn to the other discomforts.

When the general mass of the intestines is involved, there is more uniform bulging of the abdomen with a wider distribution of pain or discomfort, but this is a rare event apart from the more serious condition involved in obstruction and peritonitis.

Chronic or recurring inflation of the colon is commonly

associated with constipation and generally accompanied by the discharge of flatus per anum. This condition is responsible for the continual development of those "intestinal croakings" known as borborygmi which are excited by the peristalsis of the intestine, and also by the movements of the diaphragm and of the abdominal muscles in respiration.

At the hepatic and splenic flexures, and sometimes also in the sigmoid, sharp horseshoe curves attended by kinking and muscular spasm lead to local stasis and distension, which give rise to great discomfort often unrelieved for hours by any escape of the imprisoned gas. These attacks appear to be induced by articles of diet for which the patient has an unfavourable idiosyncrasy, and often result from exposure to external cold or the ingestion of iced beverages or confections; even fruits such as strawberries or pears may cause an attack. Besides the local distension unrelieved by eructation or escape of flatus, these paroxysms of **"Enterospasm,"** as they have been called, are remarkable for their liability to recur at the same hour on several successive days: six o'clock in the evening is a favourite time, and may be connected with the custom of drinking tea in the afternoon. As already stated, flatulence is usually associated with acidity, and this is specially liable to occur when unconsidered trifles are taken at irregular times, enough to excite gastric secretion while insufficient to absorb and occupy it. It is doubtful also whether on these irregular occasions the alkaline digestive secretions of the pancreas and liver, which should neutralise the contents of the stomach as they traverse the duodenum, are excited in an equivalent degree, the absence of bile being an acknowledged factor in the production of fermentative changes and irregular or insufficient peristalsis.

The remedies which have been advocated for flatulence are as numerous as the wide distribution and variations

in the complaint would lead one to expect. Those which exert an immediate local influence are either antacids or aromatics, while those which have a more continuous and extended effect are antiseptic, cholagogue, or purgative.

As a type of the first class Sal Volatile is a good example and a very popular remedy; half a drachm with ♏ xx of Spirits of Chloroform and ♏ x of the Tinctura Carminativa in water forms an agreeable and effective dose in an ordinary attack of gastric flatulence, or the combination of sal volatile and spirits of chloroform with bicarbonate of soda and infusion of cloves in appropriate doses is effectual. Immediate relief can often be obtained by taking two or three drops of peppermint or cajeput oil on a piece of sugar, and when the more formal drugs are not at command a very good draught can be extemporised by pouring boiling water on four or five crushed cloves in a wine-glass, and adding ten to twenty grains of carbonate of soda; merely drinking hot water will commonly be of benefit, since each time the cardia is relaxed some pent-up gas escapes, and much of the effect of the aromatic substances, alcohol, or ether depends on this. A compound rhubarb pill followed by a draught of hot water exerts a relaxing influence on both the œsophageal and pyloric openings, and acts later as a purgative, so that it is probably the most comprehensive remedy where flatulence and distension are associated with a meal which disagrees, either on account of its chemical or physical characters or the temporarily disordered state of the stomach.

Flatulent distension of the colon is more difficult to relieve immediately by drugs. Locally applied pressure and heat exert the most rapid effect, but the spasmodic attacks known as "Enterospasm" are often rapidly benefited by menthol given in small doses. A pill composed of Menthol gr. ¼, Calomel gr. ⅛, with sufficient

Powdered Ginger (gr. ij) and Syrup of Glucose to make up a convenient bulk, may be given three times a day, though a single dose ensures relief in a few minutes. Compound menthol or soda mint tabloids have a similar effect.

Heartburn.—This word well expresses the uncomfortable sensation which occurs behind the lower end of the sternum when the acid contents of the stomach regurgitate through the cardiac orifice into the œsophagus. It may result from active exertion, lying down or stooping just after a meal, but may come on independently when there is flatulent distension of the stomach or irregular secretion of acid with active peristalsis. In the latter class of cases, which are commonly associated with neurasthenia or gout and habitual dyspepsia, there may be such profuse discharge of this acid fluid that it is ejected from the mouth almost as in vomiting. Indeed the contraction of the stomach with dilatation of the cardia only lacks the simultaneous compression by the abdominal muscles to complete this.

The discomfort itself may be relieved by drinking a little fluid so as to wash back the acid into the stomach, or corrected with a little alkali, such as sal volatile or soda, the soda lozenge of the Pharmacopœia being specially useful on such occasions. In one instance the acid eructations referred to above, which had continued off and on for forty years, were relieved by "Live-long tablets," an old-fashioned mixture of soda, ginger, rhubarb, and magnesia made into a sort of confection with sugar. When these occurrences are frequent, the patient should be advised to sit or stand upright for some time after a meal, lying down or stooping tending to bring the gastric contents against the cardia, but the condition often connotes dyspepsia with over-acidity and spasm of the pylorus or laxity of the cardia.

The modern view of digestion, aided by gastric surgery, has tended to displace the stomach from its

pre-eminent position as an organ of digestion, regarding it chiefly as a reservoir for food, which exerts some antiseptic power, and continues comminution by dissolving connective tissue and cement substance in animal fibre, rendering ingested matter more easily permeable by the true digestive juices. Long retention of the food by contraction of the pylorus, excess of acid secretion or the occurrence of fermentation, are affairs apart from the normal function of the organ, and indicate something wrong either in the stomach itself or in the chemical or physical qualities of the food.

Hiccough.—This uncomfortable and sometimes distressing phenomenon is produced by intermittent spasmodic contraction of the diaphragm, the resulting inspiration being checked by falling together of the vocal cords, which are not held open as in inspiration. It is often a terminal symptom in serious abdominal states such as peritonitis and intestinal obstruction, and is sometimes a neurotic manifestation, in such cases being continued in an exaggerated fashion for weeks, though ceasing during sleep and capable of suppression by disciplinary measures.

Under more ordinary circumstances it appears to arise in connection with stomach irritation, excited by flatulence, over-distension, or indigestible food, and especially by hot condiments such as pepper and curry powder. Active exertion immediately after a meal is also a common cause, and it very frequently occurs in infants from too hurried or excessive ingestion of milk. The attacks are not usually prolonged, and consequently afford little opportunity for trying drugs, but once started are kept up by expectancy, so that often the best way of arresting them is by suddenly diverting the attention. Pressure of the finger-tip on the cricoid cartilage with slight movement is often successful, and is especially useful in infants, hiccough in them often ending in vomiting.

In adults, drawing a deep breath and maintaining contraction of the diaphragm is usually effective; counting up to a hundred without drawing breath, or taking several sips of water with a similar restriction answers nearly as well, and is easier to carry out. Failing relief by these methods, reliance may generally be placed on the effect of a good sneeze excited by tickling the nostril or taking snuff.

In really protracted cases apomorphia, morphia, and pilocarpine in full doses have been injected with benefit; inhalations of chloroform or amyl nitrite have been given, or firm traction on the tongue has proved effectual, tension being kept up while the period of several spasms passes. If any morbid condition such as distension of the stomach or hyperacidity coexists, it should be relieved, and lavage has proved immediately remedial in some cases.

Dyspepsia.—Under the term "indigestion" are included a number of uncomfortable sensations associated with the ingestion and digestion of food, which may be considered under "minor disorders" so long as the objective signs of wasting, hæmorrhage, really severe pain, persistent vomiting, and the serious indications denoting perforation or obstruction in the digestive tract are absent. Apart from these signs of organic disease, the distress caused by disturbance of the process of digestion, even when expressed only by morbid sensations, is serious enough to call for relief, though it is frequently borne for long periods by the patient, under the impression that it is irremediable or will pass off of its own accord with some change of circumstances; such an event having, perchance, come within the range of his personal experience. To the medical adviser few things are more unsatisfactory to deal with than subjective symptoms, often intermittent in their occurrence and dependent on a disturbance of balance in the daily life of a patient, who is not sufficiently incapacitated to put himself under complete supervision. It is almost needless to say that dyspepsia occurs at all

ages, commencing in infancy with the disagreement of natural food, calling for the hundred-and-one proprietary articles which contend with one another for popular favour; associated in childhood with insufficient mastication usually accompanying the temporary dentition and increased by the interregnum prevailing between this and the completion of the permanent set of teeth. In the period of school life, when boys are commonly allowed to bolt their food and regulate the duration of their meals by the exigencies of the playground, the irregular ingestion of articles which are neither particularly wholesome nor nutritious throws a further strain on the function of the stomach. It is a marvel to many adult observers how the average schoolboy does commonly emerge scatheless from these as from other self-imposed risks. The vigour of youth and absence of over-sensitive nerves make light of gastric remonstrances, if they exist, and the facility of vomiting, which is a feature of the young throughout the animal kingdom, is an effective safety-valve, a timely evacuation of the stomach no doubt often affording escape from more prolonged trouble.

A common cause of so-called indigestion is insufficient interval between meals. We start the day later, and introduce more repasts, than did a previous generation, to say nothing of the ancillary refreshment between them. The stomach may be considered to be never empty, it gets no physiological rest, and any morbid fermentation that may be set up is inevitably handed on by the gastric residues from one meal to another, while the organ itself does not contract, and in not a few instances appears rather to dilate and lose its peristaltic power. It is worth considering that in most cases of indigestion dependent on functional causes the only meal which may be unattended with subsequent discomfort is breakfast—that is, the one succeeding the relatively long, foodless interval

of night. There are, of course, other things which throw an undue strain upon the functions of the stomach, one of the commonest being " eating too fast." It is unnecessary to go into the many motives for this, but whatever they are, the economy will not keep pace with the voluntary act of swallowing. Mastication, insalivation, the secretion of the digestive juices, the successive chemical changes the food undergoes and its passage from one portion of the tract to another, can neither be hurried nor dispensed with. To scamp the preliminary phase of the digestive process in the mouth is only to throw extra work on the rest of the tract, the stomach especially, work which it is neither suited nor prepared for, and consequently does not perform; so that a large portion of the food thus hurriedly taken is passed on practically as foreign matter, not merely to waste, but injuring the delicate mechanism and interfering with such normal processes as may be going on. Eating hurriedly, however, is not alone accountable for this crude interference with digestion. Many people are not blessed with what the dentists call " a good bite ": either there are gaps in the teeth due to loss or irregularity, or when the proper complement is present there is not necessarily satisfactory contact between the upper and lower sets. Then there is the character of the food, which may be so tough as to defy the strongest masticatory powers. Those who are prone to indigestion would find it a good rule " never to put into the mouth anything which resists a moderate use of the knife and fork, and never to swallow anything they cannot bite." It is only too common a practice to get rid of tough morsels by " bolting " them, and to persist in eating more of what has already proved refractory from motives of politeness, carelessness, or sheer necessity. Such self-sacrifice may be commendable socially, but it entails serious and prolonged suffering on the victim of such considerations, and if he is prone to indigestion will

render him miserable and uncompanionable for hours and even days. Instances are known in which grape-skins have been found in the stomach three months, and the pulp of an orange six months, after being swallowed, and it is not too much to suppose that tough morsels of meat, doughy substances saturated with fat, ill-made pastry and pudding-crust, and various "strings and stones, skins and bones" will be refused passage by a sensitive pylorus for hours or even days; in the meantime preventing the stomach from resting, and becoming the nucleus of fermentative processes, which interfere with the wholesome solution of successive meals and give rise to eructation of gas and the various uncomfortable sensations which constitute dyspepsia.

Those who possess irritable and sensitive stomachs may suffer long before they find the remedy or the regimen which relieves them or secures immunity, but they will do wisely in the long run to eschew strange cooks and unaccustomed dishes and to adhere to simple fare. In the preparation of food attention must be paid to the due hanging of meat before it is cooked, and if this cannot be accomplished, it is better to consume New Zealand lamb which is imported already well hung, or else to select the inner organs, such as tripe, sweetbread, or liver, which are easier of digestion than ordinary meat. Though fish and poultry are commonly supplied to invalids as being easier of digestion than meat, this is not always the case. It should be remembered that boiling is better than baking or frying, and that flat fish of all kinds are more tender than others, except, perhaps, whiting or smelts, and, of course, oysters.

But the form of animal food which is best tolerated by a hypersensitive stomach is milk in one form or another and egg albumen. They may be diluted in various ways, or converted into semi-solids, such as junket, custard, or blancmange, or combined with starchy food, either predigested

or not. When these are rejected or give rise to pain, there remains nothing but absolute starvation for a few days, so as to give the stomach complete rest both in the matter of secretion and peristalsis. Thirst can be alleviated and the comfort and bulk of the patient maintained by enemata of warm water, the quantity being raised by degrees to half a pint every four hours. This, of course, requires the patient to be kept in bed and rather exceeds the limit of minor medicine.

The commonest causes of attacks of dyspepsia are the ingestion of unsuitable food, mental disturbance such as worry, annoyance, and haste at meal-times, eating when overfatigued, especially when the patient falls asleep immediately afterwards, and undue activity either immediately before or after eating. In one instance of a busy city man who barely got through his day's work in time for the evening meal, the late Sir Andrew Clark gave but one direction, "Dress for dinner," and this was effectual.

For the ordinary solitary instances of food disagreeing and perhaps occasioning a disturbed night, there is no remedy equal to the compound rhubarb pill taken as soon as the disorder is recognised. It will restore peace and comfort, and render the stomach fit for next morning's breakfast. For children the compound rhubarb powder (Gregory's) answers the same purpose, and is useful as a disciplinary measure as well as a therapeutical one.

Where the discomfort succeeding meals is habitual, as in nervously excitable individuals over-anxious about studies in youth and about other affairs in later life, all the precautions about taking food at proper intervals and in a proper state of preparation, both as regards the individual and the food, must be observed; but in addition it will often be found that the constant discomfort has led to the elimination of one thing and another from the diet list, till the patient is restricted almost entirely to carbohydrate food in the form of bread and sweets.

There is commonly some tenderness of the stomach area with distension and even dilatation of the organ associated with succussion and loss of peristalsis and contractile power. These are the very numerous cases which benefit remarkably by the mode of treatment introduced by Dr. Salisbury and named after him, and which consists in the administration of raw meat finely minced and lightly grilled, in increasing quantities up to half a pound to a pound at a time, nothing else being allowed except hot water as a beverage either some time before or after the meal. In the majority of these cases the fermentation of carbohydrates is the root of the evil, and a sustained, purely nitrogenous diet puts an end to this, while supplying a highly nutritious food in a small space, and so encouraging the stomach to contract to normal dimensions.

Apart from this special *régime*, however, persistent flatulent dyspepsia may often be cured by omitting all farinaceous food for a day or two and subsisting on nitrogenous material such as meat, fish, and eggs alone. Sometimes the restriction of each meal to one class of food, such as fruit, cereals, or meat, is found beneficial. Lengthening the intervals between meals so as to ensure the stomach being empty before the next is taken exerts a powerful influence in correcting morbid processes in the digestive tract, and free imbibition of water, preferably hot, an hour or more before or after meals tends to clear and refresh the stomach. Fasting to the verge of actual hunger is a ready cure for many functional derangements of digestion.

Such unsuspected articles as bread, coarsely made as it sometimes is in the country with a good deal of potato ; or water, hard with an unusual amount of calcium salts, may be the cause of persistent discomfort. To sum up, it may be affirmed that digestion and fermentation go hand in hand in the moist warmth of the stomach,

and anything which checks the former tends to encourage the latter; hence food matters which are not readily permeated and broken down by the gastric juice, dilution of the secretions by draughts of fluid immediately associated with eating, fatigue, worry, or sleep on a full stomach, are all likely to result in fermentation getting ahead of digestion, with consequent pyloric spasm, gastric dilatation, hyperacidity due to inorganic acids, and the evolution of gas. Such a meal is spoilt, it is a "bad brew," and the sooner it is got rid of by vomiting or purging the better for the individual. These are nature's methods of cure and the safest and speediest to imitate. Little has been said as to drug treatment in connection with this occasional disorder, for on the one hand, in otherwise healthy subjects, the rational attention to diet and the physiology of digestion should suffice to prevent or correct such errors, and on the other, the habit of taking the numerous nostrums advocated as cures for indigestion has led to little good and much harm, and it is not contemplated here to enter into a consideration of more serious forms of disease.

There are, however, some preparations which afford relief to the temporary discomfort. Mention has already been made of the compound rhubarb pill, which may be considered the most wholesome and effective remedy. Another pill is composed as follows:

℞. Menthol	gr. ¼
Calomel	gr. ⅛
Pulv. Zingeribis	gr. ij
Maltine	q.s.

This affords immediate relief to flatulence and discomfort and tends to check further fermentation. Three or four may be taken at intervals of a quarter of an hour. Rather less efficient in their effects are the bismuth and soda lozenges of the British Pharmacopœia. The Mistura Bismuthi Co. recommended by the British

Pharmaceutical Congress [1] is an agreeable and soothing compound, but belongs to a more serious class of remedies, containing as it does morphine and hydrocyanic acid.

Constipation.—Among minor disorders, it would be difficult to select one which is so prevalent, productive of so many complications and remote disturbances, so difficult to remedy in its later stages, and which is so neglected in its beginning when the obstacles to recovery are slight. The periodical evacuation of the residue of the digestive process is absolutely essential to health and comfort, and its inefficient performance results in two groups of symptoms: the one referable to mechanical distension and irritation, both local and reflex; the other to resorption of poisonous matters developed or surviving in the fæces.

The greater part of the large intestine is principally concerned with the absorption of the chyme poured into the ascending part by the ileum, and its contents gradually pass from liquid to solid as they approach the rectum, the numerous pouches tending to delay the transit and increase the surface for absorption, which is normally not complete till this last part of the intestine is reached, and the usual amount of the daily evacuation, some five or six ounces, is no more than the rectum can easily accommodate.

Compared with the rest of the large intestine, the rectum is straight, smoothly cylindrical and thick-walled, adapted to the modelling and expulsion of the final residue of the food, which comes to rest at the internal sphincter and accumulates for a distance above this, according to the infrequency with which the bowel is emptied. This wait in close proximity to a ring of lymphoid tissue is closely associated with local infections

[1] Morphine Hydrochloride 8 gr., Distilled Water 4 ʒ, Compound Tincture of Cardamoms 3 ʒ, Chloroform 70 ♏, Liq. Extract of Nux Vomica 135 ♏, Acid. Hydrocyan. dil. 320 ♏; mix and add concentrated solution of Bismuth 15 ʒ, and water q.s. to one pint. Dose 20-30 ♏.

resulting in ischio-rectal abscess, fistula, proctitis, and possibly hæmorrhoids.

The immediate result of omitting to empty the rectum, a matter which is under the control of the will, is the accumulation of fæcal matter involving distension of this portion of the gut till it encloses a globular mass instead of a tapering cylinder, the ejection of which through the small though distensible anal orifice becomes increasingly difficult. In addition, the walls of the rectum, thinning as they distend, lose power of contraction, and the contained matter by continuous absorption of fluid becomes harder, while the concentration causes the phosphate of lime to deposit in rough mortar-like masses of crystals. Fortunately, at first, increasing distension of the rectum excites contraction which is at last irresistible, but by habitual retention this tolerance is encouraged, the muscular walls cease to respond, and particularly as age advances, what is termed "ballooning of the rectum," with deficient contractility, supervenes, and habitual constipation is established. The evils which ensue are: constant and increasing difficulty in emptying the bowels, serious complications from straining at stool, fæcal obstruction and stercoral ulcers, which may perforate.

Other causes which tend to difficulty in relieving the bowels are: taking too little fluid, so that, the needs of the economy being stinted, absorption by the colon is carried on to almost complete dryness of its contents; taking little food, and that of a nature to leave scanty residue; inactivity, which results in loss of muscular power in the abdomen and probably defective bile secretion; and the ingestion of astringents, such as lead, hard water, or tea which contains much tannin.

Exceptional causes are surgical operations about the perineum, paralysis of the diaphragm or abdominal muscles, and other conditions affecting the power of

compressing the abdomen. I have known a case of extreme emphysema where great difficulty existed in this respect, and it should never be forgotten that displacements or tumours in the pelvis or actual stricture of the lower bowel may for a long time convey no other impression to the patient than difficulty in defæcation.

The common effects of constipation are headache, loss of appetite, foul breath, and furred tongue. There is often irritability of temper, lack of power of application, and general malaise. Inability to sleep soundly and waking unrefreshed are common accompaniments, usually associated with increased vascular tension. Among special disturbances may be mentioned epistaxis, and such paroxysmal affections as asthma, migraine, bilious attacks, and, in children, convulsions. Epileptic fits are encouraged, but can hardly be said to originate in constipation.

There are, moreover, many complex and irregular groups of symptoms which might not ordinarily be thought of in this connection, due nevertheless to what has been termed Copræmia, or toxic absorption from the colon. Such cases are often rendered all the more difficult of detection by the fæcal accumulation being masked by even a daily motion of the bowels, and it may be only by a pelvic examination or the recognition of scybala by palpating the abdomen that a knowledge of the true state of things is arrived at. Complete corroboration is subsequently afforded by the immediate recovery of the patient when effective purgative measures have been adopted.

For instance, a woman of thirty-five had been ill for five weeks with an eruption of erythema multiforme, the temperature rising to 103° every other day with chills and sweats as in malaria, the bowels were recorded as acting daily, yet a pelvic examination undertaken in the expectation of finding some source of septic infection,

which had been excluded elsewhere, revealed only a loaded rectum, and the adoption of thorough evacuant measures practically disposed of all symptoms in twenty-four hours. Another young woman had been invalided for a similar term with continual rejection of food and recurring hæmatemesis associated with anæmia and remarkable fractiousness, relieved for a time by careful dieting, but presenting all the features, including epigastric tenderness, of relapsing gastric ulcer. This case made no real progress till resolute purgation was adopted, though the bowels had been apparently acting regularly, and then she recovered at once.

Instances of severe neuralgic headache, palpitation, bronchial asthma, and pains referred to the muscles or fasciæ, or called lumbago and sciatica, are of frequent occurrence, and often yield at once to an enema or purgative. The older generation of practitioners had a higher appreciation of the value of keeping the bowels open than we have now, just as they paid more attention to the characters of the pulse and tongue.

Habitual constipation may often be remedied by diet with only the occasional employment of drugs, and to arrange this effectually the physiology of the colon must be principally considered, the factors of most importance being habit, moisture and bulk of residual matter, and the due activity of the muscles and glands concerned.

The evidence of rhythm in the bodily economy is so obvious that it is hardly necessary to refer to it. The disposition to sleep, to wake, and to take food recurs in most individuals with the regularity of the clock, and this periodicity is marked in disease, by the recurrence of paroxysms such as those of ague, asthma, neuralgia, exacerbations of fever, and many neurotic seizures at one particular hour. A similar cycle is observable in the majority of healthy people in connection with the

bowels, and should be imitated by those who aspire to a similar satisfactory condition. There is in addition a remarkable sympathy between the stomach and the colon, shown in many ways, but particularly in the tendency of the ingestion of food to excite activity in the lower bowel. In some diseases and nervous conditions, as well as under the influence of strychnine, this is so irresistible that every meal is interrupted by the necessity for going to stool.

It is probably owing to this as well as convenience that the usual time allotted to this necessary function is shortly after breakfast, and such a salutary habit should be seriously insisted on as a primary feature in correcting constipation. In many cases it will be found that a departure from this for one reason or another has marked the commencement of the complaint.

As has been already mentioned, the habit of drinking an insufficient quantity of fluid has a tendency to induce constipation by rendering the excreta too dry and hard, as in the condition of fever. Perhaps the facilities of modern life have diminished the necessity for physical exertion, so that those who are exempt from labour and not addicted to athletics have not much real inducement to thirst; but in addition to this, the inconvenience of normal activity of the skin and kidneys in the course of prolonged amusements, social functions, and journeyings sometimes prompts women more especially to limit the quantity of fluid taken. This is an unwholesome practice, which, in addition to the result here indicated, leads to too great a concentration of the natural fluids of the body, and may scarcely allow some of the less soluble salts to remain in solution.

The amount of fluid daily required by the body is two pints or more. The kidneys should remove forty ounces and the lungs account for about the same quantity in aqueous vapour, though this may be supplied by the food, which may be considered to consist of 50

per cent. water. There still remain losses to be accounted for by the skin and bowels, so that an allowance of two pints of fluid a day is really a very small one, and yet many people, especially women, do not take the equivalent of five tumblerfuls in the twenty-four hours, which constitutes this amount.

The dejecta consist of the undigested and indigestible portions of the food taken and the residues of the digestive secretions, with more or less poisonous matter returned from the liver in the bile, and the various micro-organisms which flourish in the intestinal tract. Their bulk necessarily varies with the quantity and degree of solubility of the food. Though absolute abstention does not completely abolish them, as may be seen in starvation and in newly born infants, yet it has an important influence on the frequency and ease with which the rectum empties itself. The addition of such indigestible matter as the seeds and skins of fruits, some of the husk of wheat, as in brown or wholemeal bread, and the cellulose structure of vegetables, with whatever else that is unirritating and sufficiently comminuted to readily pass the pylorus, must be regarded as wholesome in assisting the regular action of the bowels. The effect of subsisting entirely on elaborately selected and prepared food, including fine white bread, from which these coarser elements are excluded, is entirely the opposite.

The influence of muscular and glandular activity in assisting the action of the bowels is best illustrated by the common experience of the effects of sedentary habits, of the exclusion of bile from the intestine in obstructive jaundice, and the indirect effect of extremes of heat and cold, in inducing constipation.

From these observations it will be understood that the natural remedy for constipation consists in affording regular opportunity for the bowels to act and so

cultivating the habit; taking sufficient fluid to satisfy all the needs of the body without carrying the desiccation of the bowel contents too far (a glass of water night and morning being a useful addition to the usual daily consumption), taking a due proportion of indigestible matter in a divided form, such as is contained in brown bread, marmalade, oatmeal, and fresh or dried fruits, with such ordinary laxatives as syrup, honey, preserves, and salad oil. The question of exercise must be suited to the age and circumstances of the individual, but is most effective when taken before breakfast, if only as gymnastic movements which include the abdominal muscles. It may be considered that no exercise is worthy the name which does not quicken the pulse and respiration and so far increase the development of heat as to moisten the skin.

Where these measures prove insufficient recourse must be had to drugs, not more than two days being allowed to pass without an action. The mildest laxatives that are efficient should be adopted, as the more powerful the drug the greater the reaction, and constipation is relieved not cured by purgatives. The confections of sulphur or senna, manna, castor oil in doses of a drachm or two well shaken with milk, or sulphate of magnesium or sodium in drachm doses with half a pint of water should be taken in the early morning, and are mild enough to be given to children. Calomel as lozenges containing one-eighth or one-tenth of a grain, Colalin in half-grain tablets, or small doses of Cascara may be taken three times a day. A useful pill is that recommended by the late Sir Andrew Clark containing a quarter of a grain each of calomel, euonymin, iridin, and podophyllin, which should be taken at night; the latter drug is sometimes effective alone, one grain being dissolved in an ounce of glycerine and teaspoonful doses taken at intervals of four hours.

These may be regarded as adjuvants to the *régime*

already recommended, but where accumulation has already taken place the bowel must be cleared by means of enemata either of soap and water alone, or if induration has already taken place, this should be preceded by a drachm or two of glycerine or five ounces of olive oil. A sufficient dose of castor oil should also be given to complete evacuation of the higher reaches of the intestine. In spite of the most active purgation hard scybala converted almost to the consistence of stones by phosphate of lime may remain in the pouches of the colon, easily palpable through the abdominal wall and merely tunnelled or grooved by the passage of more fluid matter. These can scarcely be removed except by croton oil, not given in such drastic doses as one minim, but in one-sixth or one-third of a grain repeated three times a day, either in a pill containing some carminative or with half an ounce of castor oil flavoured with peppermint or menthol. Croton oil is not an agreeable remedy for the patient and requires great care in its administration by the practitioner, but there appears to be no other drug which excites sufficient secretion and peristalsis to dislodge these concretions, which seem almost embedded in the mucous membrane. All the more care is needed since they chiefly occur in elderly and feeble individuals. If there is any doubt as to their presence either before or after attempts at treatment, it can easily be dispelled by an X-ray skiagram.

Cracked Lip.—It is well known that eczema is specially prone to occur at the junction of mucous membrane and skin, and this petty lesion is a case in point. Either upper or lower lip may be affected, usually in the middle line, the next point of election being the corner of the mouth. Owing to the mobility of the part and its peculiar sensitiveness, even a trifling fissure constantly asserts itself, is slow to heal, bleeds readily, and proves a great source of discomfort. It occurs

mostly in spring and autumn and in association with catarrh or disturbance of digestive function. Once developed, it may persist or recur for several days, but does not penetrate below the surface of the cutis and is very rarely multiple. The best local application, more effective at night, is an ointment composed of fifteen grains of lead acetate to an ounce of white vaseline or lard. But lotions such as Hebra's—

℞. Carbolic Acid . . . . . ℥ ij
Glycerine . . . . . ℥ j
Ether . . . . . ℥ j
Spir. Vin. Rect. . . . . ℥ vj

or a simple solution of 2–10 grains of Silver Nitrate in Nitrous Ether ℥ j, are serviceable and more convenient by day. Intractable fissures may be touched with sulphate of copper or lunar caustic, after moistening the hard edge, at night. A small dose of calomel or blue pill followed by a saline purge is often of service in connection with associated digestive disturbance.

A more diffuse dry eczema causing roughening and soreness at the edge of the lip and in patches around the mouth, particularly in children and those with thin clear skin, during the prevalence of dry east wind and cold weather, may be relieved with any simple ointment, but the dilute white precipitate ointment or the glycerine of tannic acid with an equal quantity of eau de Cologne is particularly suitable.

Catarrhal Herpes.—In the immediate vicinity of the several orifices of the body there not infrequently occurs an outcrop of small vesicles on a reddened base preceded by papules and attended by a sensation of heat and tension. Such outbreaks are usually noticed about the mouth, nostrils, and meatus urinarius, more rarely near the eye, external auditory meatus or anus. The eruption may even attack the mucous membrane in the con-

junctival sac, buccal cavity, fauces, and urethra or immediate neighbourhood. Though it resembles shingles in appearance, it differs in its tendency to recur, affecting the same individual in some cases every few months, and in the absence of neuralgic pain.

The onset is often marked by chilliness or actual shivering with slight rise of temperature, and, on the face especially, it is a frequent accompaniment of various specific fevers, particularly coryza, pneumonia, and ague. It sometimes occurs endemically, possibly in connection with defective hygiene, outbreaks being reported from time to time as "herpetic fever."

The attack itself is of little importance apart from its symptomatic association, but is productive of some soreness and disfigurement at the time, and sometimes gives rise to anxiety when affecting the genitalia through being mistaken for venereal disease.

The treatment consists in protecting the vesicles from the air and drying them by starch and zinc powder: an ointment of zinc oxide or boracic acid being a soothing application if the patient is not going about.

When affecting moist surfaces, frequent washing and the separation of contiguous parts with lint soaked in weak boracic acid or lead lotion are more suitable. In the mouth and conjunctiva gargles and collyria can alone be used. On the genitals if superficial suppuration occurs, although this is somewhat exceptional, aristol powder may be employed or lint soaked in a weak solution of peroxide of hydrogen.

In regard to recurrence the only preventive measures are daily washing of any part particularly liable to attack, and the special consideration of any diathetic state that predisposes, the most important of which is gout. The arrest of local chronic or recurring discharge in the threatened area should not be neglected.

Dry Mouth.—The persistent deficiency of secretion

in the mucous membrane of the mouth and of the salivary glands, though consistent with good general health, is productive of serious discomfort, the movements of the tongue and lips being so far interfered with that talking and eating become almost impossible without continually sipping fluid.

Some half a dozen instances of this distressing affection have been brought to the notice of the profession by Mr. Hutchinson and the late Dr. Hadden, but doubtless many others have existed, and as a temporary condition it is probably more common. It has been regarded as a neurosis of the sympathetic, having in one case at least followed mental shock and been associated with suppression of lachrymal secretion either on emotional or reflex excitation. Mr. Hutchinson has suggested that it is allied to the physiological state of fear or nervous excitement in which the buccal secretions are commonly suppressed.

In the cases described, the lining of the mouth and tongue was much altered, becoming smooth and shining with impairment of taste and diminution of sensibility, the tongue itself becoming fissured, very red, and quite denuded of papillæ.

As a concomitant of fever, particularly when accompanied by nervous prostration, desiccation of the mouth is familiar enough, as it is also in severe cases of diabetes, and the same thing is observed in some cases of neurasthenia. So far all the idiopathic cases reported have been in women of from fifty years upwards. Treatment in these has so far been unsatisfactory, the use of glycerine locally and tincture of jaborandi in ♏ xxx doses three times a day affording only very partial alleviation. In the symptomatic cases benefit has resulted from the administration of lemon juice, dilute phosphoric acid, pyrethrum and pilocarpine, the latter in the form of tablets (gr. 1/10).

Ulcer of the Tongue and Mouth.—The

irritable ulcer at the side of the tongue commonly situated about the middle, and rather towards the upper than the lower surface, is practically always due to contact with a projecting point, such as a collection of tartar or a broken tooth. Swelling of the tongue is an important factor in the trouble. Variations in the bulk of the organ are very wide, as may be seen in comparing the thin dry tongue of fever or of irritant dyspepsia with the pale swollen teeth-indented tongue of atonic dyspepsia. The projection from the tooth may indeed be persistent, perhaps a natural cusp, and yet ulcer and soreness occur in the same spot only at intervals, generally opposite a bicuspid. This results from the enlargement of the tongue often in association with atonic dyspepsia, causing it to bulge against the teeth, the indentations being obvious along its edges. For some time, though soreness is felt, no definite lesion can be seen, then there appears some redness and irregularity of surface, and finally a shallow soft ulcer, the trouble in one phase or another lasting days or even weeks, sometimes with remissions or recurrences.

Treatment consists in removing any sharp projection from the tooth, and in reducing the bulk of the tongue, which can be best accomplished by purgatives and a mixture of mineral acid and strychnine. Some relief may be afforded in the meantime by the use of lozenges of cocaine, borax, and chlorate of potash, and healing may be hastened by applying sulphate of copper in crystal to the surface, or by ordering the patient to frequently paint the surface of the sore with a solution of chromic acid (gr. x to water ʒ j).

This treatment is only applicable to the soft, superficial, and transient abrasions. An ulcer with definite edge or indurated base may be tuberculous, syphilitic, or cancerous, and requires very serious consideration.

Dyspeptic ulcers occur in the front of the mouth either towards the tip of the tongue or on the adjacent

mucous membrane beneath it or inside the under-lip. One or more points may be affected, each ulcer appearing as a buff more or less circular or oval patch surrounded by a narrow red margin. The ulcers are painful, smarting especially when food is taken, and commonly last several days. They are usually associated with gastric disturbance, either catarrh or dyspepsia, and require both local and general treatment. After drying the surface, lunar caustic may be lightly applied or the crystal of copper sulphate held in contact for a minute, till the buff surface is destroyed and sufficient reaction excited to encourage healing. The ulcers often commence in small cystlike developments of the mucous glands, and are commonly associated with an acid reaction of the secretions of the mouth, so that an alkaline mouth wash or antacid tooth powder is beneficial. A very useful mouth wash in ulcerative or septic conditions of the mouth is composed as follows :

℞. Thymol	gr. j
Acid. Benzoic	gr. j
Ol. Gaultherii	♏ j
Eucalyptol	♏ ½
Ol. Menth. Pip.	♏ ½
Spir. Vin. Rect.	ʒj
Acid. Boric.	gr. xxv
Glycerini	ʒj
Tr. Cocci	♏ xx
Aq. dest.	ad O. j

A preparation similar to Odol is produced by dissolving Salol 2·5, Saccharin ·004, Peppermint Oil ·5 in Alcohol 80 per cent. 97, and adding Clove and Caraway Oils.

The general treatment should consist of mineral acid and some vegetable bitter with a laxative. A compound rhubarb pill taken for two or three days before the evening meal is effectual, and small doses of strychnine with nitrohydrochloric acid and sulphate of soda or magnesia answer very well.

When the mouth affection is very diffuse, as in ulcerative stomatitis, aphthous stomatitis and gingivitis, local measures should be restricted to the use of the mouth wash or glycerine of borax at frequent intervals, the caustic being omitted.

Sometimes after taking strong cheese and other irritating condiments, there develops a follicular inflammation over the hard palate for an inch or so behind the incisor teeth persisting for several days, but which is speedily relieved by the mouth wash above mentioned.

As a preventive measure, now that oral sepsis is recognised as the source of both local and general disease, the employment at least once a day of an antiseptic mouth wash containing permanganate of potash or dilute formalin, such as the preparation known as "Formolyptol," is to be strongly recommended, as a preservative both of the teeth and the health, and as a preventive of many minor disorders of the mouth and throat.

Riggs's or Fauchard's Disease (Pyorrhœa Alveolaris).—Though anything but a recent discovery in medicine, modern conservative dentistry and the recognition of oral sepsis as a fertile source of chronic disturbance of health have led to a wide expansion of interest in this complaint. As it is, moreover, a very common one, insidious in onset and not invariably painfully assertive, it is either overlooked by patients or not thought worthy of mention to the medical attendant, though it may be the underlying source of more definitely recognised disorders. The etiology of the complaint is not absolutely clear: rheumatism has been suggested, and in this country at least, few can claim to have been wholly free from any taint of that widespread affection. Inefficient brushing of the teeth allowing formation of tartar between them and the gums, and the known profusion of micro-organisms existing in the mouth, offer more reasonable explanations. Once established in such inaccessible fissures, the

cocci are free to develop and extend unchecked, and to run the gauntlet of the digestive tract: perhaps sometimes in disordered states of the secretions escaping destruction and obtaining a lodgment elsewhere, as in the stomach or appendix vermiformis. Locally, various septic and suppurative lesions of the buccal mucous membrane, teeth, and tonsils, recurring at intervals, are traceable to the affection.

Souwers in *The New York and Philadelphia Medical Journal* for July 30, 1904, writes: "Recurring tenderness of the teeth, making mastication uncomfortable, accompanied by some soreness of the gums, is frequently referred to the catching of slight colds, or to the stomach being out of order. The first reason for taking advice is often that the individual has noticed the receding of the gums from certain teeth, or that the use of the tooth-brush, or even slight pressure by the fingers, occasions bleeding. The occurrence of pain, resembling in character that experienced when exposed dental nerves are subjected to varying temperatures on taking food or drink, but situated at the lateral surfaces of the teeth, will forcibly notify the sufferer that action of some kind is essential. Even sudden changes in atmospheric temperature, as in going from a warm room into a cold entry, the mouth being open, will start an attack of aching. In other cases there is a sensation of burning and stinging situated along the gingival border in the upper jaw, the feeling being particularly marked in the rugæ behind the incisors. On examination the mucous membrane is found red, shining, swollen, and appears to hang in folds; and to the patient, when impact is made by the tongue, this suggests that pus or fluid of some kind must be present. When touched by the finger, the feeling of a sodden tissue is given. Slight pressure over the diseased area, when the trouble has progressed sufficiently, will elicit a slight purulent discharge in even very mild cases. In those mouths in

which the morbid condition has been long continued, there will be found, between the gums and teeth, varying quantities of tartar, which, by constant accretions, act as a wedge that slowly but surely causes a recession of the gum, the ultimate result being the loosening and dropping out of the teeth. Even in mild recent attacks, where prompt treatment has caused a halt of the invader, examination of the tooth fangs, by means of a small scaler introduced between the neck of the tooth and the gum, will generally reveal commencing deposits, the presence of which is resented by the gum, as shown by its tenderness, sponginess, and bulging between the teeth, its tendency to ooze blood, and the constantly recurring gumboils which make life a burden to the sufferer."

The prognosis was at one time regarded as extremely unfavourable, but under decided, persistent, and patient treatment a cure may be effected, though relapse will follow neglect, or the too early cessation of treatment.

The treatment consists first in remedying any systemic diathesis, such as gout or rheumatism, and the removal of such contaminating influence as may be exercised by painting and metal-working.

Locally, the gums, adjacent rugæ on the palatal surface, and both sides of the teeth must be thoroughly cleaned with hydrogen peroxide, taking care to reach the recesses in the mucous membrane behind the last molar teeth, as it is here the disease lurks when all other parts have apparently returned to a normal condition. The pus having been thoroughly removed even from the fissures between the teeth and gums by this agent, the mouth must be well rinsed out with water. Then, on a morsel of absorbent wool, aromatic sulphuric acid, either pure or diluted with once or twice its bulk of water, according to the severity of the mischief, is applied, care being taken that all recesses, corners, and fistulous passages are searched and that the acid is applied between

the gums and the necks of the teeth, avoiding as far as possible touching the crowns. The pledget of wool need not be dripping with acid and may be hardly more than thoroughly damp. Fine-pointed forceps must be used, as the application should be effectually inserted between the gum and the teeth, and in the narrow spaces between adjacent teeth. For reaching into a sinus too small to admit the pledget of wool, applicators made of paper or Wood's cotton may be used.

Following the acid, a mixture of equal parts of sodium carbonate and borax must be freely applied, being well rubbed in either with a piece of absorbent cotton-wool or with the finger, taking care that it is packed firmly into the dental interspaces, so as to completely neutralise the acid.

The mouth is again cleansed by water ; then sulphate of quinine is dusted along the seat of disease and lightly packed between the teeth ; dipping dry absorbent cotton in the quinine and lightly, but firmly, dabbing this on the diseased parts is the simplest method.

One course of treatment of the character described will often suffice, but the progress of the case will indicate if repetition is needed, and if the strength of the acid should be modified.

The quinine should be used daily till the gums become and remain normal. As an aid in the relief of the gum congestion, a solution of adrenalin (1–1000) is effective, particularly in the declining stage of the inflammation. The patient should be directed to use a mouth wash two or three times daily of some cleansing antiseptic preparation. In addition, he should at bedtime rinse the mouth with magnesia cream or a solution of magnesia, leaving it adhering to the buccal surface, this being the best preventive of tartar.

Many dentists prefer powdered sulphate of copper to the aromatic sulphuric acid, and substitute a saturated solution of tannin in Eau de Cologne for the quinine.

Teeth which are hopelessly loosened should be removed, this being the readiest means of curing the pyorrhœa.

Where the teeth are sensitive on their lateral aspects to changes in temperature, protection may be afforded by drying the surface and applying a paste made of zinc oxide moistened with a few drops of phosphoric acid, or by gently swabbing the exposed roots of the teeth every evening with alcohol.

Toothache (Odontalgia).—The relief of pain is essentially the province of medicine, and though few medical men extend their practice into the realms of dentistry, there are occasions, when they are called upon in emergencies, where a little knowledge and resource may save a great deal of suffering, and only such occasions and measures will be adverted to here. What is commonly termed "toothache" may be either odontalgia, in which pain is complained of in a tooth, either from local disease or from distal nerve disturbance, or else neuralgia of the trigeminal, which in many cases, though imperfectly localised, depends on dental trouble.

Sometimes exposure of the neck or fang of a tooth from retraction of the gum, when associated with an acid reaction of the mouth secretions, gives rise to pain. Under similar circumstances a carious tooth of old standing may cause suffering. It is useful, therefore, to remember that merely rinsing the mouth with a little warm water and soda or sal volatile will in such instances give relief.

The main causes of pain, however, of a more severe type are inflammation of the pulp or periosteum, the one involving caries, and the other redness and swelling of the gum, in either case tenderness on pressure being a prominent symptom. In rarer instances the pain is associated with retrogressive changes in the pulp or nerve of an apparently sound tooth or one that has been filled.

Acute inflammation of the pulp involves pain of a

sharp, shooting character, throbbing with the pulsation of the vessels, increased in the horizontal position and therefore worse at night, and by changes of temperature. Locally, cold relieves and heat intensifies the pain. There is practically always a cavity in the tooth, and contact with the interior excites acute suffering, as the pulp is commonly exposed.

Temporary relief may be secured by applying a particle of cotton-wool steeped in one of the essential oils such as that of cloves, cinnamon, or peppermint, or in pure carbolic acid, and covering with another pellet dipped in gum mastich or sandrac moistened with chloroform. A favourite remedy in Italy, under the name of Odontodol, is composed of Cocaine Hydrochlorate, gr. xvj, dilute Hydrocyanic Acid ♏ xvj, Tincture of Arnica ʒ ij, and Liquor Ammonia Acetatis to the ounce. Tension in the pulp cavity from a putrescent pulp, usually in a tooth which has been stopped, requires relief by opening the chamber.

Periosteal pain—that preceding an alveolar or root abscess—is more constant and gnawing in character. Tenderness is elicited by pressure on either the gum or the tooth, and though biting on it at first gives a sense of satisfaction, this becomes unbearable as the inflammation progresses. Later there is swelling of the face and the pain is mitigated. Appropriate remedies are first a purgative such as a drachm of sulphate of magnesia every four hours for three doses, or a colocynth and calomel pill at night, with local removal of blood by scarification or a leech, and then the painting of the dried gum with a mixture of equal parts of liniment of iodine, tincture of aconite, and chloroform.

Maturation of the abscess may be hastened and some relief afforded by the application of hot fig or raisin poultices or wool steeped in hot water in the sulcus between the gum and the cheek, but poultices over the

exterior of the face are to be sedulously avoided, as they encourage the bursting of the abscess through the skin, leaving a permanent and unsightly scar.

When pain has existed for some hours and the formation of pus is already probable, its escape may be aided and relief afforded by carrying a double thread steeped in carbolic acid deeply between the tooth and edge of the gum by means of a needle with the eye broken so as to leave only a notch sufficient to hold the thread in position during its insertion, the thread thus acting as a drain.

Fissure of Anus.—It is certainly remarkable that whereas slight wounds of mucous membrane in the mouth, stomach, and rectum usually heal with great rapidity, spontaneous lesions of those parts such as small ulcers are extremely persistent, and can often be remedied only by great care and patience.

Fissure of the anus is an example of a peculiarly small and apparently unimportant lesion producing great suffering, and which exhibits no disposition to heal of its own accord. The symptoms are very characteristic, but are commonly erroneously referred by the patient to piles. Slight moisture at the anus and itching may be the only thing noticed till the bowels act, when there occurs severe rending pain which may inhibit the contraction of the bowel, induce spasm of the external sphincter, and persist for some hours. These attacks of pain return with increasing severity with each attempt at defæcation, causing the utmost misery and dread. If the patient is taken at her word, an examination, which causes a similar attack of pain, reveals nothing in the nature of piles. Only a very careful scrutiny in a good light will enable the observer to appreciate the small crack or ulcer partly within and partly without the anus, and usually at the posterior aspect. It may be concealed by a fold of skin, but is commonly indicated by a small vascular projection in close proximity. The ulcer is

quite shallow, the base occupied by a whitish granular slough, and it may not exceed an eighth of an inch in length. Early mild cases are readily cured by the application of nitrate of silver or even sulphate of copper in the solid form : a single application may suffice, but the healing may be further encouraged, if it flags, by applying a solution of the same agents (one grain to the ounce of water) two or three times a day. Should the ulcer have attained greater dimensions and not respond to this treatment, it must be completely exposed, and the base divided by drawing the point of a small knife across it from edge to edge, and the "sentinel pile" if present snipped off.

It is as well to endeavour to heal the ulcer in the interval between the action of the bowels, which may be extended by a mild opiate, evacuation being subsequently encouraged by a laxative.

Hæmorrhoids in their persistent and aggravated form constitute a definite surgical complaint, and are only to be cured by operation, but occasional engorgement or even inflammation of the hæmorrhoidal veins and contiguous tissues about the anus, either just within or without the sphincter, is so common a malady that few escape it, and many people suffer from transitory attacks at repeated intervals till they ultimately require the services of the surgeon, especially if treatment is neglected in the early stage.

Usually after a period of constipation, and particularly if this has been overcome by strong purgatives, the development of piles is marked by aching pain in the coccygeal region, increased by defæcation, which is difficult and painful, and attended by protrusion of the distended mucous membrane conveying a sense of obstruction. Inflammation and thrombosis of the distended veins usually ensue, indicated by a burning sensation and often acute tenderness. There may be

irritation and muco-purulent discharge and occasionally slight hæmorrhage which affords some relief. Examination with the finger detects smooth, firm projections at the margin of the anus, which are tender, rendered more prominent by straining, and when seen appear as deep crimson distension of the anal folds or of the mucous membrane above. The aching generally radiates over the perinæum and often extends down the thighs, but is usually relieved by putting the legs up or still more by lying down.

Treatment consists in applying astringents and anæsthetics locally while relieving the portal circulation and softening the fæces by mild laxatives. A single thrombosed and inflamed pile may be immediately cured by incising the swelling and turning out the clot under a local anæsthetic. The best local astringent is adrenalin; a preparation of the gland extract made up with lanoline under the name of "renaglandin" is a popular and effective preparation, and may be combined with a small quantity of menthol, cocaine, or eucaine. Suppositories of hammamelin, of lead and opium, and galls and opium, may also be used, but should be warmed before insertion, to soften them. Glycerine suppositories are also useful, especially when it is desired to obtain a speedy action of the bowels. The laxatives in most general use are the confections of senna, sulphur, or pepper, taken at night. Ichthyol in pills of three grains three times a day has been recommended, but any of the milder purgatives, except those containing aloes, suffice.

Enteroptosis.—Laxity of attachment of the several abdominal organs may occur individually or collectively, the latter condition, associated with flaccidity of the parietes, having been considered exhaustively by Glenard in recent years. The displacement and mobility of the kidney, especially on the right side, have been attributed to tight lacing in women, and the same cause may account for

other displacements, but the general condition of abdominal laxity, sometimes called Glenard's disease, appears to result in all cases from loss of bulk. It is not uncommon after childbirth, and accompanies rapid wasting from any cause, but especially that which is associated with neurosis or neurasthenia. The patients are women approaching middle age, and they complain chiefly of disability in getting about, fatigue and dragging pains at the waist and loins, and exhibit a tendency to stoop forward in walking or standing. On examining the abdomen, which is lax and thin, the muscles appear unusually flaccid, and in well-marked cases the various organs can be grasped through the loose parietes and moved freely in any direction. It is, of course, out of the question to think of surgical interference in such a widespread condition, and an attempt must be made to restore the natural tone and fat. The Weir Mitchell system combined with massage and electrical stimulation will effect this, but many patients recover if supported and enabled to get about. Two pieces of five-pound sheet lead are cut out to fit accurately the front and sides of the abdomen, leaving a gap of two inches in the middle line and half an inch along the bony margin of the thorax and pelvis. These are sewn into brown holland covers having a free edge half an inch wide, by which they may be pinned or sewn inside the corsets. These should be long enough to cover the lead plates, which have to be carefully adjusted and temporarily attached to them by pins while the patient is in the horizontal position. The corsets can then be fastened, the lead plates becoming moulded to the front and sides of the abdomen affording firm and elastic support to the viscera through the medium of the gas-containing intestines. When found to be rightly adjusted, the plates can be stitched to the corsets and put on with them every day before rising, so as to retain the organs in their proper position. As they

become moulded to the body they are quite comfortable, and their weight does not exceed two or three pounds. After a time they crack with wear, especially on stooping, but if the original pattern is taken in paper and retained they can easily be replaced, being slipped into the old cases. This plan enables the patient to go about in comparative comfort, but should be persisted in for three months while efforts are made to restore the general tone and nutrition, and when these succeed the plates may be dispensed with.

CHAPTER II

DISEASES OF THE SKIN

On account of its extreme sensibility and the disfiguring effect of anything disturbing its surface, but few affections of the skin can be lightly regarded.

Affording, as it does, such a ready field for observation and treatment, the subject has been already so minutely dealt with by specialists that practically nothing concerning it is omitted from modern medical literature.

There are, however, a few familiar ailments which on that very account are rarely brought seriously under the notice of the profession, but which are preventable or remediable, and at the same time sufficiently annoying to be worth considering.

Owing to variations in the blood supply and functional activity of the skin, with changes of temperature, disturbances of the surface are more prone to occur with the onset of hot or cold weather, so that the spring and autumn are specially productive of them, and from time to time exposure to unaccustomed influences leads to painful reaction.

Were it more generally understood how many disorders of the skin are dependent on constipation and deranged digestion on the one hand, and insufficient or impeded cutaneous excretion on the other, both often due to physical inactivity, many of the minor skin troubles would be avoided.

The alternation of full functional activity with

physiological rest constitutes the best means of keeping every organ, and the system generally, in good working order, and of maintaining physical health; and, in the case of the skin, an occasional Turkish bath when perspiration is not excited by ordinary means, in addition to daily bathing and friction, is very beneficial.

General eruptions dependent on constitutional disease or internal derangements will not be touched on here, nor will any allusion be made to the well-known parasites, only such common reactions to external influences as are of familiar occurrence being within the range of this chapter.

Baldness.—Falling of the hair—defluvium capillitii—in a slight degree is a normal and continuous process consequent on the natural termination of the life of individual hairs, which then become detached from their follicles and are presently succeeded by new ones.

This loss is accentuated at certain times of the year, notably in the spring and autumn, and occurs also in an exaggerated degree at irregular intervals as determined by temporary impairment of health and vigour, such as the catamenial periods in women and in either sex as a concomitant of indigestion, anæmia, acute fevers, and, indeed, any illness which reduces the quality of the blood and force of the circulation or impairs the vigour of the nervous system.

The persistence of loss of hair with defective renewal, however, in comparatively young men, sufficient to produce visible baldness, is a matter beyond this natural process, calling for explanation and, if possible, remedy.

Actual data are scarcely obtainable, but that there has been of late years a great increase in the number of men, more or less bald, between the ages of twenty-five and fifty-five is a very general and deep-rooted impression.

This is especially the case in cities, suggesting the idea that it may be due to the wearing of hard hats,

prescribed rather for the purpose of ceremony than for service or comfort. It is certainly remarkable that women under similar conditions of life do not so suffer, and that baldness is practically unknown among the young and middle-aged of native races who wear no such headgear, and is very much less common among countrymen and sailors.

An obvious anatomical explanation is offered in the compression of the nutrient arteries of the scalp between the skull and the rim of the hat, which may not only limit the circulation in the wearing, but may produce such thickening and compression of the arterial walls as may render diminution of their calibre permanent, the effect being the more marked owing to the vertex being the highest point in the circulation, and the vessels terminal.

Not only does baldness specially affect those who habitually wear hard hats, but it specially affects that part of the head included in their grip, leaving a healthy fringe of hair below and in no way extending to any part of the face. It may be observed, too, that those with broad or round heads are more frequently affected than those whose heads are narrow or long, presumably because the temporal artery in the latter is less exposed to pressure. This limitation of the loss of hair to the part included in the hat appears quite irreconcilable with the idea of independent disease of the scalp and hair follicles, which would never stop short at such an artificial barrier any more than it would refuse to extend to the face. And it would appear much more probable that the associated phenomena described in this connection, such as scurf, thinning of the scalp, and diminishing thickness and length of hair, are all due to local anæmia from compression of the vessels, and that the conditions of anæmia, debility, and disordered digestion, when present, are merely the associated effects of town life.

The variations in the occurrence, degree, and distribution of baldness are sufficiently accounted for by differences in the course and distribution of the blood-vessels supplying the scalp, and in the shape of the head. The practical solution, according to this view, is to discard hard hats, as some have already done ; or at least so to arrange them that no pressure is exerted on the main arteries passing upwards in front of and behind the ears at the sides of the head ; or, better still, to wear a full-sized hat supported on the head by a leather lining shaped as a skull cap, as was done with helmets in the middle ages.

By such means baldness may be prevented or may be arrested when commencing, but it is very doubtful if it can be cured when once completely established.

This is doubtless true of premature baldness which often affects men in robust health, and cannot reasonably be attributed to any constitutional taint or even partial failure of health.

The local changes in the scalp and hair have been well described by Hebra. The first period is that of seborrhœa, in which the vertex is covered with an immense quantity of thin white asbestos-like scales, continually being desquamated and renewed, covering the hair with a fine branlike dust, while the moister part clings to the scalp, and, if neglected, accumulates, and from admixture with dust, forms a yellow or grey crust. Potash or soda soap will remove this, disclosing the sound skin white or reddened. Yolk of egg is an efficient and more soothing application, but whatever the treatment the exudation is renewed in a few hours and persists for months or years. It is sometimes accompanied by slight itching.

The condition is sometimes associated with anæmia and evidence of feeble circulation such as cold extremities, with chilblains, congested nose, moist palms and soles,

imperfect digestion, and in women scanty, painful, or too abundant menstruation or other uterine disorders.

Seborrhœa commonly begins between the ages of twenty and thirty and persists till after forty. The disorder is very common, and those affected do not usually apply to the physician in this stage, but when the inevitable falling of the hair and baldness supervene in two to six years, their concern is aroused, often too late for remedies to be effective.

The frontal region and vertex are first affected, giving rise to two bald patches which may become confluent later. Sometimes the anterior border of hair disappears, so that the patient is bald to the occiput (ophiasis). The scalp, thus denuded, appears white, smooth, and shiny. It is tightly stretched over the skull, thin, and can only be pinched up with difficulty. At first numerous fine short slightly pigmented hairs appear, and this is an indication that recovery under suitable treatment may be hoped for; later, when these have vanished, nothing can be expected of remedies.

The duration of life of any individual hair varies according to its position and with the age and state of health of the person. After persisting for months or years, it normally falls out and is replaced by a fresh one from the same or a neighbouring papilla.

The thicker the individual hair the longer it remains attached to its papilla and the greater length it attains. As the physiological term of life shortens, so the length and thickness likewise diminish. There is also an interval between the shedding of a hair and the appearance of its successor amounting to some weeks. When the nutrition of the hair is failing, at first few, then many, hairs suffer diminution in length and thickness and in their term of life. Seborrhœa causes a disturbance in the reproduction of the hair: it represents a too abundant production of cells by the sebaceous glands, associated

with chemical change in the direction of fatty impregnation. The cells of the outer root-sheath corresponding with the rete mucosum are continued without interruption into the sebaceous glands, and the same change which occurs in them extends presently to the root-sheath of the hair. In consequence of such an alteration in nutrition and the mechanical separation of its elements, the hair must necessarily be shed. If this numerical hyperplasia of the cells of the root-sheath diminishes, the cells become more stable and a new hair may be formed. They may either then nourish a new hair formed from the old papilla, or they may themselves undergo transformation in their central portion into a hair. This return to a regular production of hair actually occurs in very advanced stages of alopecia furfuracea; but after seborrhœa has persisted for six to ten years or more while the production of new hairs has been in abeyance, a return to the normal condition is not at all probable, and at length is no longer possible, the papilla and vessels having become so changed (atrophied) that they are no longer capable of producing new cells for the formation of a fresh hair bulb, Baldness is then permanent.

Loss of hair occurring in the course of acute or chronic illness may be due either to simple trophoneurosis, or to seborrhœa then commencing and continuing after health has been restored, as an independent affection.

Treatment.—The first step in the application of remedies is the removal of the sebaceous crust from the scalp. The accumulation of scales must be softened by carefully rubbing olive oil or paraffin into the skin of the head and leaving this all night, protected by a cap. After twelve to twenty-four hours the head is well washed with soap, the most satisfactory preparation being the Spiritus Saponatus Kalinus, prepared by digesting soft

soap in half its bulk of rectified spirit, filtering, and scenting with spirits of lavender. The scalp is washed with a sufficient quantity of the solution, the addition of a little warm water from time to time effecting a lather which is subsequently thoroughly rinsed away with cold or lukewarm water.

Anointing with oil is only necessary for the first few days until the sebaceous crust is entirely removed, but the daily washing with soap solution and water should be continued for months, the hair and scalp being allowed to dry and the fat being replenished with some oil or pomade. Later a spirit lotion without soap may be employed.

These are the essentials of treatment, but modern pharmacists have usually added to the pomade or spirit lotion employed in the later phases certain drugs having a reputation for promoting the growth of hair, perhaps from some effect in causing irritation and redness of the skin. There is no objection to their use, and the following are some of the formulæ advocated:

Lotions.

ERASMUS WILSON.

Ol. Amygdalæ, ℥ j
Liq. Ammoniæ, ℥ j
Eau de Cologne, ℥ j
Ol. Rosmarini, ℥ iij
Ol. Myristicæ, ℥ iv
Tinct. Jaborandi ℥ j
Aq. Rosæ, ad. ℥ viij

HEBRA.

Tinct. Canthar. ℥ ss, *or*
Ac. Tannici, gr. xij
Sp. Vin. Rectif. ℥ v
Sp. Lavandulæ, ℥ j
Ether. Sulphurat. ℥ ij
Glycerini, ℥ iv
Ol. Bergamot, ♏ x

Quin. Hydrochl. gr. xxiv
Acid. Tannici, ℥ j
Alcohol. (60%), ℥ xss
Tinct. Cantharid. ℥ j
Glycerini, ℥ vj
Eau de Cologne, ℥ iv
Vanilin, gr. ss
Lign. Santal, gr. iij
Pilocarpin Nitrat. gr. iv

Mix. Macerate 4 days and filter.
℥ xij

To be well rubbed into the scalp night and morning.

Pomades.

Tanno-Quinine.	Dupuytren.	Gemmarum Populi.
Ol. Theobr, ℥ jss	Medullæ Ossium, ℥ ij	Resin. Gem. Populi, ℥ j
Ung. Emollient, ℥ ss	Extract. Cinchonæ, ℥ ij	Adip. præp., ℥ vj
Ol. Amygdalæ, ℥ jss	Tinct. Cantharid. ℥ j	Aq. Rosæ, ♏ 160 ; heat together and add
Quinin. Sulph. gr. x diss. with acid in Aq. Rosæ, ℥ ss	Succi Citri, ℥ j	Ol. Citri, ♏ x
Olei Citri, ℥ ss	Olei Limonis, ♏ xx	Ol. Bergamot, ♏ x
Ol. Bergamot, ♏ xx	Olei Bergamot, ♏ x	Ol. Rosmarin, ♏ x
Ol. Lavandulæ, ♏ xx		
Ac. Tannici, gr. xl		
Tinct. Canthar. ℥ j		
Eau de Cologne, ℥ iij		

These are used to lubricate the scalp after evaporation of the spirit lotions.

It may here be repeated that on scientific grounds alopecia furfuracea is curable during the first few years of its existence, if the seborrhœa causing it be removed by persistent and energetic use of the Spiritus Saponatus Kalinus and of the alcoholic ethereal fluids with the occasional addition of fatty material to the epidermis, whenever it has become too dry. Recovery will be aided by tonics, especially arsenic and iron, with convalescent diet and surroundings, persisted in for six months. This *régime* may be followed in chlorosis or after fevers and acute diseases, but apart from these the treatment of incipient baldness will probably be limited to local remedies, and it is not always easy to ensure the efficient application of these for a sufficient time.

Papules.—The formation of pimples, particularly about the face and neck, is mostly due to inflammation of hair follicles or the associated sebaceous glands. They may be either pale or red, and sometimes present a yellow point from the formation of a minute quantity of pus. Apart from trifling itching they are chiefly objectionable on account of their appearance, and if rubbed may not disappear for days. Should there be a tendency to the formation of successive crops, it is best to treat the patient

constitutionally by some laxative such as sulphur lozenges or salts every morning till they subside, or calcium sulphide in pills (gr. 1/4) may be given internally; otherwise, touching individual pimples, when they first show themselves, with toilet vinegar or colourless solution of iodine will usually abolish them; even the ordinary tincture may be used at night, as the colour vanishes in a few hours.

When a small yellow head has appeared, pressure with a small key will evacuate pus or sebaceous matter and hasten subsidence.

Stye (Hordeolum) occurring on the margin of the eyelid and due to inflammation of the ciliary follicles is of the same nature and runs much the same course as the preceding, but is even more painful and disfiguring and usually leads to considerable swelling and redness of the lid, owing to looseness of the cellular tissue. Some individuals are specially prone to develop styes, which may succeed one another for some weeks on account either of the constitutional state of the subject or owing to auto-infection.

Lawson recommends painting the lid with collodion or touching the spot with mitigated nitrate of silver in the very early stage, taking special care that none gets into the eye. Where an eyelash can be seen emerging from the inflamed spot, its removal with forceps often expedites recovery, and, as it is generally already loosened, this is not so painful as might be expected. Should the inflammatory process continue in spite of these measures, recourse must be had to hot fomentations or decoction of poppy-heads applied under oil-silk at night, leaving the pus to find an exit for itself. The lids may subsequently be bathed with a lotion composed as follows:

℞. Sodæ Bicarb.	ʒj
Boracis	ʒj
Acid. Hydrocyan. dil. . . .	fl. ʒj
Aquæ Sambuci	fl. ʒij
Aquam destill.	ad. ʒviij

the Unguent. Hydrarg. Nitratis, in the proportion of

one drachm to seven drachms of white vaseline, being painted on the lid at night.

The administration of a laxative followed by a tonic mixture of the mineral acids with bark, or quinine and iron, may be required where there is failure of the general health or a succession of styes.

Folliculitis of the Buttocks.—Another form of local though more extensive pimple formation, usually occurring in young men, is the outcrop of papules on the buttocks which sometimes accompanies rowing or riding. It is due to pressure and friction, and is mostly developed at the commencement of the exercise, subsiding of its own accord with rest, though extending if neglected and sometimes leading to very uncomfortable sores if infected. Those with thick and opaque skins are most liable to suffer. The most convenient remedy is a powder composed of equal parts by weight of zinc oxide and starch applied for two or three days while the particular exercise is desisted from; and a daily rubbing with alcohol in any form such as whisky, eau de Cologne, or even methylated spirit is a good prophylactic in the case of those who are prone to this affection.

A closely allied and still more common trouble is the pimple or small boil which is apt to form at the back of the neck from pressure of the collar, and especially its edge. Owing to persistence of the irritation these sometimes assume quite formidable dimensions, and not only suppurate but infect the neighbouring skin, producing discomfort of indefinite duration. One essential of treatment is the removal of pressure, and if pus has already formed, the evacuation of this by puncture. Subsequent insertion of a little carbolic acid affords the speediest cure. Bearing in mind the liability of local infection, some weak perchloride of mercury or carbolic lotion may be dabbed on the surrounding skin or a small perforated protective plaister, as that of opium, applied

to the spot itself; but wearing a loose bandage or handkerchief round the neck as is commonly done only increases the trouble. As constitutional remedies, ordinary pitch or ichthyol in three-grain pills, thrice daily, have been given with good effect.

The Injuries inflicted by Insects are with few and unimportant exceptions due to the inoculation of venom. They may be bites, stings, or penetrations of the proboscis for the purpose of suction.

Ants and spiders inflict minute wounds with the mandibles, simultaneously injecting an acrid fluid, irritant to human beings, though lethal to other insects attacked. The bites of spiders, which are rare, and even questioned in temperate climates, like those inflicted by rats, may be aggravated by the introduction of matter derived from putrescent food, the wounds inflicted being actually septic. For the most part, saving the accidental introduction of specific diseases such as malaria, yellow fever, plague, sleeping sickness, anthrax, cholera, typhoid fever, leprosy, beri-beri and filaria sanguinis hominis—all of which have been attributed to insects, and particularly mosquitoes—the insertion of the proboscis in feeding only produces irritation dependent on the instillation of the secretion of the salivary gland, which assists the flow of blood. This is the case with fleas, bugs, most varieties of flies, and has been experimentally proved in the leech.

On the other hand, bites and stings inflicted in defence or anger are immediately painful, and may even prove dangerous by reason of the severity or locality of the injury or the constitutional state or idiosyncrasy of the patient.

Prolonged disturbance may result from the continuous irritation of creatures which bury themselves in the skin, such as the jigger (*Pulex penetrans*), the itch insect (*Sarcoptes scabiei*), or the harvest bug (*Leptus autumnalis*),

but even the insertion of the proboscis may lead in some skins to the formation of a papule or vesicle which continues to give rise to itching for several days, particularly on washing the skin or changing the clothing. This is evidently due to an irritant fluid, for if the spot be pricked and pressed with a watch-key, a drop of clear fluid exudes and the irritation at once ceases.

The irritant associated with the ant (*Formica*) is the first acid of the Methylene series, and named, after the insect, formic acid. Its peculiar odour is easily identified emanating from an ant's nest which has been disturbed. The same acid has been identified in the hair-glands of the stinging nettle, which produces an identical injury on the skin. The stings of bees and wasps effected by the modified and envenomed ovipositor of the worker or sterile female are commonly held to owe their malignancy to the same agent, deposited more freely and deeply in the tissues.

Some mitigation of the more superficial stings may be obtained by the application of water or the alkaline juice of any succulent plant to the injured skin, though a solution of soda or ammonia is more effectual, provided there is no delay, for the essential point is to dilute or neutralise the acid before reaction in the form of swelling and hyperæmia occurs and closes the minute external orifice of the hurt. The deeper injuries of the hymenoptera are popularly treated on the same principle, the blue-bag, soap, or a split onion being the immediate agents employed: these all contain free alkali, and their homeliness may be excused on account of their generally being ready to hand, but a fairly strong solution of ammonia, potash, or soda is the more appropriate and effectual remedy if applied at once.

In *The Medical Record* for February 8, 1890, Dr. Ricord of New Jersey reports an instance of the immediate cure of a hornet's sting by the application of a spray of

peroxide of hydrogen to the already swollen cutis. Though this is an isolated case, it suggests that this powerful agent may prove of service in the local treatment of envenomed wounds of even a more serious nature, and even the weaker solution which is usually in the surgery as ozonic ether may prove of value in dealing with the stings of bees and wasps.

Exceptional instances are recorded from time to time in which vertigo, syncope, and collapse have ensued on such injuries, not necessarily from a multiplicity of punctures or even recurring in the same subject on another occasion, the inference being that these symptoms, which occur immediately, are due to the direct instillation of the poison into a vein, the absence of resistance from solid tissues possibly encouraging a more liberal dose. This view is supported by the slight local reaction in such cases and by the observation of similar effects associated with the hypodermic injection of morphia under like circumstances. Appropriate treatment in such an event would be general rather than local, consisting of the administration of stimulants, especially ammonia or sal volatile, or even the subcutaneous injection of ether.

Perhaps the most formidable injuries which have been attributed to bees and wasps are those unfortunate instances reported from time to time of these insects being taken into the mouth or actually swallowed either in fruit or some beverage. The swelling resulting from a sting in the tongue or in the neighbourhood of the larynx then causes great distress from a sense of impending suffocation added to the pain and alarm, and unless this can be rapidly relieved by scarification, or the air passage kept open by mechanical means, laryngotomy must be resorted to, as death has actually occurred under such circumstances. Some relief may be obtained by sucking ice or applying adrenalin, but for some hours such cases give rise to great anxiety.

For the most part the attacks of gnats and midges, and even of mosquitoes, are too general to admit of individual local treatment. Under some circumstances, especially in the tropics, it may be considered worth while to wear a wide veil at the periods, usually after sundown, when they are most prevalent. It is also as well to avoid exposing the ankles even indoors; thus open slippers should not be worn, better protection being afforded by thin moccasins or the old-fashioned buskins into which the trousers may be tucked, the ankles being a favourite point of attack.

Even in hot weather in temperate climates such measures are fortunately hardly worth submitting to, but the less aggressive creatures may be warned off by the use of carbolic soap, inunction with the oils of lemon, citronella, or sassafras or thymol in the proportion of ten grains to the ounce of vaseline, or still more conveniently by a concentrated extract of pyrethrum in eau de Cologne.

The Harvest Bug, also known as the Mower's Mite (*Leptus autumnalis*), practically unknown in towns, but only too familiar in certain parts of the country as the immediate cause of insupportable itching, is itself so small as to be almost invisible.

Gilbert White, in *The Natural History of Selborne*, writes (Letter xxxiv.): "There is an insect with us, especially on chalky districts, which is very troublesome and teasing all the latter end of the summer, getting into people's skins, especially those of women and children, and raising tumours which itch intolerably. This animal (which we call a harvest bug) is very minute, scarce discernible to the naked eye; of a bright scarlet colour, and of the genus *Acarus*. They are to be met with in gardens on kidney beans, or any legumens, but prevail only in the hot months of summer. Warreners, as some have assured me, are much infested by them on chalky downs, where these insects swarm sometimes to so infinite a degree as

to discolour their nets, and to give them a reddish cast, while the men are so bitten as to be thrown into fevers."

This larval acarus is $\frac{1}{3}$ mm. in diameter, globular in shape, having a fused cephalo-thorax divided by a transverse furrow from the abdomen. The legs are long, six-jointed, with two sickle-like claws on the tarsus, and there are no discoverable sexual organs. The colour has been variously described as orange, scarlet, or brick-red, and the creature resembles as nearly as anything a fine grain of cayenne pepper. For its size, it moves rapidly, and usually invades human beings by crawling over the feet, though it may do so by the hands while picking fruit, or gain direct access to the body of any one reclining on the ground. The eggs are laid in June and July, the larvæ hatching out in July and August. They abound on dry soil in hot dry weather, and are most often encountered in stubble fields, on downs, by the roadside, and in gardens, where they are specially plentiful on French beans, hops, and fruit bushes; though in the districts they favour their distribution is pretty general. In wet seasons and beside rivers they are not met with. Owing to the development of these pests, which varies with the character of the soil and season, occurring about the period of the annual vacation, the irritation set up by them usually comes as an unpleasant surprise to holiday-makers, all the more probably since the agent is not seen, and its effects are commonly delayed for some hours after exposure, generally asserting themselves at night, after a day in the country. The ankles and legs are mostly affected, but always the covered parts of the body or limbs, and principally regions subject to pressure, such as the waist, neck, wrists, or knees. This may be a question of moisture, as the axillæ are commonly attacked, or it may represent places where the migrations of the acarus are arrested. Scattered spots may occur on any part of the limbs or trunk, but the hands and

face escape, affording a contrast to the injuries inflicted by gnats. Having selected its point of attack the acarus burrows into the skin with the aid of sharp mandibles, burying the cephalo-thorax, but not the abdomen. It evidently secretes some irritant substance to encourage exudation, and by suction swells to four or five times its original size, at the same time causing a weal as large as a threepenny-piece which burns and itches intolerably. The torment is unfortunately not limited to the single occasion, but recurs every time the clothes are changed or a bath taken, and interferes with sleep at night for a week or more, evidences remaining perhaps for a month. In children and persons of nervous excitability, especially where the bites are numerous, a slight degree of fever may be produced, or general urticaria may result.

Preventive measures are obviously the most important in connection with this pest. Those who have the pain of its acquaintance are usually content to avoid its haunts during the larval period in the hot weeks of July and August, and at least endeavour to expose themselves as little as possible to their attacks by delegating garden operations to those less susceptible, and by leaving stubble fields, dry downs, and field-paths severely alone in affected districts. Some protection may be secured by smearing the ankles with oil of citronella or sassafras or a solution of thymol in vaseline (10 grains to the ounce) effected with the aid of heat, or pyrethrum in eau de Cologne. A continuous covering of thin close-textured underclothing is also to be recommended.

If the skin be stretched till the spot becomes pale, a small orange point can usually be discerned where the creature is buried, and if pressure is exerted here by the approximated finger-nails or with a small key, a drop of fluid can be extracted and the subsequent duration of irritation much abbreviated, but this is a tedious and difficult matter when the bites are very numerous, and

the application of sal volatile, vaseline, or carbolised oil must be resorted to. In worse cases naphthol, weak sulphur, or white precipitate ointment should be employed.

Plant and Caterpillar Rashes.—Local dermatitis due to penetration of the skin by the hairs of caterpillars and plants is occasionally met with in those coming in contact with them, usually schoolboys or persons occupied in gardening. It is seldom seen in cities, and so rarely comes under the notice of members of the medical profession that many have no experience of the complaint, though it is familiar enough to those immediately concerned. The chief characteristic is the limitation of urticarial or erythematous patches to the hand, and sometimes to the neck and face on the same side, or any other part of the body that is within reach of the affected limb, these secondary lesions being self-inflicted.

When recently acquired there is much tingling and irritation, accompanied by some hyperæmia and swelling, with the appearance of erythematous spots and patches or weals. These subside in a few hours, and are followed in two or three days by limited desquamation.

Minute vesicles form which dry and separate with a ragged circular edge, sometimes coalescing to form irregular patches. On very superficial observation they might suggest scarlatina in a late stage, but are usually unsymmetrical, and never involve the feet, or indeed any covered portion of the skin. Moreover, the centre of each patch may be seen with a lens to be marked by a fine point representing the irritant. In the case of caterpillar rash the usually black hairs, though broken off short, are plainly visible; the colourless hairs or raphides of plants are less obvious. When questioned, however, with such a possibility in mind, patients may recall having exposed themselves to this source of irritation either consciously in handling hairy caterpillars or particular plants, or unconsciously in a country excursion,

while pushing through bushes or sitting on the ground, where caterpillars or their discarded skins may not have been noticed. It is only the stiff-haired varieties that give rise to this trouble, particularly those known colloquially as woolly bears and palmer worms ; but there are many varieties, and the numbers vary widely with locality and season, so that at long intervals or in certain places there may be a veritable epidemic, such as occurred in Hyde Park in 1906.

The plants which more especially cause these eruptions are none of them wild in this country, but are encountered in the garden or greenhouse, and as their objectionable qualities are not exactly notorious and do not manifest themselves immediately, unconscious victims are met with from time to time.

The principal ones are *Primula obconica* and *Primula sinensis*. In *The Lancet* for April 25, 1891, Dr. S. A. L. Swan recorded two cases which came under his care, in which the effects of handling the former resembled acute eczema or erysipelas as regards local appearance, the absence of any general symptoms being a distinguishing feature. The immediate source of the injury has been traced by Dr. Riehl of Vienna to the minute hairs on the leaves and stalks. The cause and effects are similar in both varieties, but *Primula sinensis* is the less virulent of the two.

A condition resembling eczema of the face and hands has been produced in persons handling and cleaning the bulbs of hyacinths, and especially those of Roman hyacinths (var. *albulus*), the prime agents being the needle-shaped crystals or raphides composed of oxalate of lime measuring $\frac{1}{200}$ to $\frac{1}{100}$ inch in length, which are arranged in close bundles and are easily dispersed by rubbing the dry scales.

The corms of the common arum lily are similarly provided, and it is recorded that the laundresses of

Funchal, Madeira, once tried to utilise the starch obtainable from them, but complained of the irritation in the hands produced by it, which, on examination, was found to result from the presence of numerous needle-shaped raphides.

Other plants which have in individual instances exhibited irritating qualities are the common feather few, elder leaves, and buttercups. The common nettle is too well known to require mention, except to point out that its stinging property is due to silicious hairs, crushed by firm handling, but which penetrate the skin coming into light contact with them. The irritation is produced by formic acid as in the ant, conveyed through the hair from a gland at the base, and may be mitigated by the immediate application of moisture, or the alkaline juice of any plant, the dock leaf being a popular favourite.

Other species exerting poisonous effects and of colonial origin are *Phebalium Argentum*, "the Western Australian Blister plant," which blisters the human skin when handled, its acridity being due to an essential oil; and *Dysoxylon Richii*, locally called "mastenea" in the Polynesian islands, the wood, sap, or sawdust of which causes dermatitis of the hands, inflammation of the eyes, and a burning sensation in the throat.

Dysoxylon Muelleri, the Red Bean, and *Castanospermum australe*, the Black Bean, woods of New South Wales, are both credited with producing injurious effects in those working them; the former giving rise to violent catarrh with vomiting and epistaxis, besides dermatitis and the poisoning of wounds inflicted by it.

Cassinea aculeata, "Dogwood," and *Eucalyptus maculata* exert a somewhat similar effect on the skin, the so-called Spotted Gum rash being especially prevalent in Mount Douglas, Paterson, N.S.W.

In North America, the Poison Ivy, *Rhus radicans* (Toxicodendron), *Rhus diversiloba* or Poison Oak, and the *Rhus vernix* or Poison Sumach, exert a like influence, due to the presence of a non-volatile oil.

An efficient application to the skin so affected is a saturated solution of lead acetate in proof spirit, which combines the advantages of an evaporating lotion and an astringent.

It is a peculiarity of many of these poisonous influences that certain individuals appear more predisposed to them than do others, just as does the liability to hay fever and to the development of nettlerash after sea-bathing differ in different people. And, as in these more familiar cases, the persons affected do not become less prone to attacks by repeated exposure and can only escape suffering by avoidance of the noxious agents.

Since the introduction of teak, now so much used in this country for ship-building, fireproof floors, and staircases, many small inflamed wounds have arisen from punctures and abrasions in those working it, and those engaged in fret-sawing usually suffer from the irritating character of the dust while using that and other varieties of timber, especially rosewood.

Sun Eczema.—Erythema solare is due to exposure to the violet and chemical rays of the sun and not merely to heat. In health such exposure in moderation causes bronzing of a reddish brown tint without any separation of the cuticle, and this colouring in the open may be taken as an indication of vigour and a satisfactory condition of the blood, especially as regards hæmoglobin, as it is this which protects the tissues and supplies the pigment in a sunburnt skin.

The effect, however, is different in those who are anæmic or cachectic, in such as are accustomed to live indoors or in cities, or where parts of the body, usually covered, are exposed. Under these circumstances, par-

ticularly in fair subjects, when no protection is afforded by perspiration, the skin scorches quickly, and becomes red, swollen, hot and extremely tender, smarting on the application of water or even with its natural moisture. Some degree of fever is excited, producing restlessness at night. In severe cases blebs form by exudation beneath the cuticle; and in loose cellular tissue, as in the face, the combination of swelling and bullæ may quite close the eyes, causing serious inconvenience and discomfort. The worst cases occur on the water or on snow, where both the direct and reflected rays of the sun have free access to the unprotected skin, which, in addition, may be further denuded of moisture by a dry wind. Mountain-climbers above the snow-line, and young men making the most of a few days' holiday from city life, are the most frequent sufferers, but occasionally travellers newly arrived in a tropical climate and neglecting reasonable precautions are the victims.

People with dark skins are less prone to sunburn, and in some individuals an outbreak of closely aggregated raised red spots which smart and itch intolerably takes the place of the more diffused redness, especially on the back of the hand.

Parts of the skin which have become affected suffer more readily on subsequent exposure, and in the course of twenty-four or forty-eight hours the cuticle is shed in ragged patches as after scarlet fever, the surface remaining sore till the process is complete. Apart from securing protection from the direct rays of the sun, especially when first exposed, the skin should be kept moist either by encouraging some perspiration or applying a solution of glycerine, as it is only a dry skin that burns. Bad sunburn may require the application of Goulard lotion, and even the pricking of blisters; the less severe forms are relieved by diluted glycerine or grease, to protect the skin from the air.

Freckles (Ephelides).—Fair skins are most commonly affected, and especially those associated with auburn hair. The buff, brown, or greenish pigment spots occur in adolescents on exposed portions of the skin, usually the hands and face. They may be sparse, abundant, or confluent, and individually are circular or irregular in outline. They appear round the orifices of ducts or hairs, principally in the summer, but only partially disappear in winter. They seem to take the place of the more usual bronzing, diminishing in middle life and disappearing in old age.

Cohn has demonstrated true melanin in circumscribed portions of the basal layer of cells of the rete Malpighii with a few pigment granules in the papillary layer. Sometimes more extensive patches of pigment occur in place of the freckles, but they both come under the definition Actinic Melanoses—that is, pigmentary disorder due to the chemically active rays of the sun unassociated with heat or inflammation, but dependent on personal and family susceptibility and equally common in both sexes.

Very similar pigmentation in the first two years of life may be the precursor of the grave disorder xerodermia pigmentosa, and when affecting covered parts (lentigines of Crocker) in elderly people, they may be part of general degenerative changes.

When few in number, freckles or pigmented patches may be touched with carbolic acid or treated by galvanopuncture, but more extensive areas should be covered with dilute peroxide of hydrogen solution or oxychloride of bismuth; the following is Unna's formula:

℞. Bismuthi Oxychloridi . . . . ʒ j
Calomel. . . . . gr. ½
Hydrogen. Peroxidi (10 vol. solution) . fl. ʒ j
Adipis lanæ et Vaselini . . āā ʒ iv

The wearing of a red or brown veil has been suggested,

to cut off the violet and ultra-violet rays in some degree. Other formulæ are :

℞. Bismuth. Trinitratis, ℥ij
Hydrargyri Ammoniati, ℥ij
Adipis præparatæ, ℥j
To be spread on lint and laid on the patches at night.

Aqua Cosmetica Orientalis.

℞. Hydrargyri Perchloridi, ℥j
Aquæ destillatæ, ℥iv
Ovorum xxiv albumen
Succi citri (*i.e.* Malæ Medicæ), ℥iij
Sacchari albi, ℥viij

Chilblains (Erythema Pernio).—It is reckoned one of the beneficent properties of memory that pleasant impressions are retained longer and with greater vividness than those of a disagreeable nature. Perhaps it is on this account that the suffering caused by this common complaint is apt to be underrated, for it occurs with less frequency and severity in adults than in children ; even those who have suffered most severely in youth finding it more tolerable as they attain maturity. In children, however, the frequency and severity of the affection deserve more attention than they commonly receive.

Four phases may be recognised. Intense itching accompanies the evening rise of temperature between six and nine p.m., which may be so exasperating as to produce a state of continuous nervous rigor and totally prevent application of any kind, with the common sequel during school-days of punishment for deficient preparation of the morrow's tasks. At the same time injury is done to the ill-nourished skin by rubbing and scratching, or the still more heroic measures of beating with brushes or holly leaves, or the application of irritant or blistering agents, not uncommon among schoolboys.

With the subsidence of the itching there follows a period of acute tenderness due to congestion and swelling of the affected parts, so that where the feet are affected, as is commonly the case, walking is almost impossible, and the patient is unable to resume his discarded shoes.

Relief occurs in the horizontal position, and with the more general distribution of the blood as the child gets warm in bed, though for a time at least pain or itching may prevent sleep.

Another period of tenderness rather less acute attends first setting the feet to the ground in the morning, and the putting on of boots is sometimes a tearful proceeding.

Dull aching with frequent reminders of local tenderness persist through the day, making active exertion distasteful and converting to a painful ordeal "the sports and pleasures of the child."

Thus a vicious circle is created—chilblains leading to inactivity, and inactivity in turn leading to the persistence and extension of chilblains—which may continue for weeks, till a change of atmosphere or surroundings brings temporary or permanent relief.

Unfortunately, the immediate suffering does not represent the full extent of the damage, for not only are the affected areas extremely liable to subsequent attacks, when circumstances favour them, but their recurrence and persistence induce thickening of deeper structures, such as the bones and ligaments, particularly about the knuckles, which permanently affect the symmetry of the fingers.

This indicates that the complaint is not merely a cutaneous affection, and there are other considerations which show that it is not an absolutely local disease.

Sir A. E. Wright in *The Lancet*, January 30, 1897, associates local serous exudation with defective blood coagulability, including under this state urticaria and chilblains. In ten of the latter class of cases investigated, the time required for blood coagulation averaged 9 instead of the normal 3·5 minutes; and the administration of calcium chloride in 10-30 grain doses three times a day was attended with definite improvement, in some with shortening of the blood coagulation time.

In early life other forms of exudation are common, including the hæmophilic constitution, epistaxis, and the lymphatic state with water-logged tissues, which are amenable to the same treatment.

But the essential cause of chilblains is the contraction of the terminal arteries under the direct influence of cold in those whose vasomotor system is active and susceptible, and occurs especially in those who display this vasomotor excitability in other ways, such as ready blushing and sweating—the nervous-sanguine temperament of older writers. The majority of people do not display this peculiar susceptibility, and it undoubtedly diminishes with age.

The effect of vasomotor contraction is to cut off the blood supply, and in a proportionate degree the *vis a tergo*, from the periphery of the circulatory area, which then cools down under the influence of low temperature, while the corresponding capillary areas, where most exposed or subjected to extra cold or pressure, become exsanguine.

These are the patches which under the restored pressure of the circulation undergo capillary dilatation and blood-stasis with the accompanying phenomena of inflammation—heat, redness, swelling and pain, or itching, and which are extremely prone to relapse after recovery if again exposed to a low temperature.

Such patches commonly occur over the inner and outer sides of the hands and feet, on the knuckles, heels, and ball of the foot, and even on the nose and ears. A more unusual spot is the vertex of the bald head, and in the days of our grandmothers and the thin Empire costume it was not unknown for chilblains to extend beyond the feet some way up the front of the shins.

The effect of low temperature on the vasomotor system is much enhanced by extremes of humidity and dryness of the air, and most people are familiar with the

striking penetration of cold associated with the dryness of an east wind or the wet of a partial thaw.

The effect of local pressure is sufficiently illustrated by the prominent spots which chilblains select, and by the experience of wearing tight and thin gloves or boots in cold weather.

Erythema pernio has affinities with erythema nodosum and Raynaud's disease and is defined by Galloway in Allbutt's *System of Medicine* as a "subacute variety of erythema of the angioneurotic kind," and is specially associated with the susceptible arteries of youth, and sometimes with feeble circulation, as evidenced by an over-slow or over-rapid pulse. The local changes are, first, contraction of the capillary areas through the effect of cold on the over-active neuro-muscular vascular system, manifested by pallor, shrinking, and numbness; second, vascular reaction or erythema; and third, if the depressing influence has been sufficiently severe, paralysis with persistent dilatation of the venous capillaries and venules of the part, with escape of serum and even blood from the vessels, causing œdematous swelling of the cutis and loosening of the epidermis, which is easily injured or removed, though the formation of bullæ is rare. Abrasion of the surface causes shallow ulceration which is slow to heal on account of the poorly nourished state of the tissues, while further septic infection may involve extension in depth and area.

The prevention of chilblains in those who are susceptible is in short the avoidance of cold. Such subjects must be warmly clad throughout—the body, to secure the main sources of heat; the limbs, to ensure sufficient supply of heat and blood to the extremities, for it is chiefly in the wrists and ankles that the main vessels are most exposed to the contracting influence of cold; and the extremities themselves, as the most vulnerable parts. In addition to the clothing usually worn, long worsted

sleeves and cloth or leather gaiters or high boots should form part of the costume in cold weather. Gloves and boots should be large so as to fit loosely and allow of linings or thicker hose. Some people find worsted next the skin provocative of the malady, and in such it should be worn over a smoother material, or two pairs of socks may be employed, provided they do not involve any pressure on the feet.

The now prevalent and wholesome custom of performing certain muscular evolutions and exercises on rising or after the morning bath is to be encouraged. In any case, it is essential to begin the day warm and vigorous. To draw cold garments over cold limbs and descend without energy to breakfast in an ill-warmed room, and then perhaps to start on a cold journey without any definite effort to rouse the circulation, is to court not only chilblains, but more serious maladies. It is this chilly and sedentary beginning, so foreign to youthful nature, which makes so many victims in school-days, when children should either enjoy proper warmth or be free to rouse their energies in their own turbulent fashion.

When chilblains have once become established, their cure is not an easy matter; even relief is difficult to secure, as witnessed by the number and variety of remedies recommended. As is the case in many similar instances, these are mostly objectionable or ineffective. Anything which involves rubbing the affected skin or which causes it to become sodden tends to make matters worse by injuring the already damaged epidermis, while a continuous application of any kind to the extremities is more inconvenient and disabling than the complaint itself, so that few remedies get a fair trial, and the effect of intermittent applications is usually discounted by fresh exposure to cold during the day.

Taking these considerations into account, the most practical means of dealing with the situation is first to

secure proper warmth by suitable clothing and exercise, taking care to change or dry moist garments, especially foot covering, in the evening ; and to reserve for the night the application of more definite remedies.

For the relief of the intolerable itching which usually occurs in the evening nothing is so immediately effective as heat. Roasting the chilblain before the fire to the limit of endurance and repeating the process several times will allay the itching at the moment, and if persevered with will ultimately effect a cure. Another plan is to steep the hand or foot in very hot water, removing it when the scalding can no longer be borne, and either letting it cool in the air or plunging it momentarily into cold water, repeating the hot immersion several times. If the skin is then carefully dried without rubbing, the cuticle does not suffer, but this method is not suited to broken chilblains. Afterwards, or when going to bed, a solution of lead acetate in spirit or eau de Cologne may be applied, or an ointment composed of two drachms of wintergreen oil in an ounce of lanoline. In either case the addition of menthol in the proportion of 15 grains to the ounce will be soothing, if there is much tenderness or itching ; or, a dusting powder composed of Boric Acid 50, powdered Talc 25, Starch 25, with a little Camphor or Menthol ; or Calamine 7, Menthol 1, may be used. Relief has followed steeping the chilblains for five minutes in a solution of alum, one teaspoonful to a gallon of hot water. Many other applications have been recommended, such as castor oil, tincture of iodine, and a lotion containing an ounce each of liquor plumbi, tincture of opium, and glycerine in eight ounces of water, but these applications may be considered to come under the criticism previously expressed ; even wintergreen oil is distinguished by an odour which is so penetrating and enduring as to render frequent repetition undesirable, but if used as an ointment and either lightly rubbed in

or covered with socks or gloves, this is less developed, and its beneficial influence compensates for the disadvantage, otherwise Mesotan or Kasemol may be substituted. Whatever preparation is employed, it is probable that the uniform warmth derived from the bathing, and covering for several hours at a time, has much to do with the improvement.

For cleanliness and efficiency probably no remedy can vie with the Faradic current, applied either by pads or the water bath, according to the amount of surface involved, the best effect being produced when both poles are applied to the chilblain, but this is not a method that is generally available.

As in applying treatment for a cold in the head, the course of the malady is so variable in different subjects, and in the same one on different occasions, besides being powerfully modified by changes in the atmospheric conditions, that its effect is difficult to estimate.

Apart, however, from local treatment, it appears that the adoption of more liberal diet with some stimulant and tonic, such as phosphate of iron, to meet the depressing influence of the cold, damp, and darkness of the winter, is decidedly beneficial. In Raynaud's disease great benefit results from the administration of vascular dilators such as nitroglycerine or the nitrites of soda or ether, and by analogy these might be expected to prove beneficial where contraction of the peripheral circulation occurs from exposure to cold, combined where necessary with a cardiac tonic.

In the case of broken chilblains great cleanliness should be observed, and an ointment applied consisting of 5 per cent. carbolic acid in vaseline or the more complex one recommended by Unna: Resorcin 5 or Ichthyol 5, Salicylic Acid 3, Soft White Paraffin to 100. Where the skin is only threatening to give way, a covering of flexible collodion may save it.

Whitlow (Paronychia).—Suppurative inflammation of the finger ends has, under this term, included disease spreading to various structures, including the synovial sheaths and the deep tissues of the arm, involving loss of use or actual sacrifice of the limb. Only the superficial forms, however, will be considered here, such indeed as are limited to the region immediately beneath the epidermis or nail. The most obvious characteristic is the presence of a white central patch due to a small collection of pus beneath the cuticle, either alongside or beneath the nail or at a little distance from it on the terminal phalanx of the finger or toe, with an area of redness round it.

A focus of this kind resulting from the inoculation of septic matter by scratch or puncture is usually single, limited in area, and attended by severe throbbing pain. It will extend if left alone, but immediately the pus is released, relief occurs and recovery is rapid. There is always an antecedent period of twenty-four hours or perhaps more before pus can be detected, during which pain may be increasingly acute and is best treated by a hot or cold compress with a few drops of laudanum, the hand being elevated. This treatment may be continued after pricking or snipping the raised cuticle, but the separated portion should be completely removed, the underlying surface thoroughly cleansed and then protected by an emollient ointment till sound. When the inflammation extends beneath the nail to any extent, recovery will not be complete till this has either separated by itself or been removed, but while only at the edge, the nail may be saved if the pus can find an exit, and the part be soaked with an effective antiseptic such as corrosive sublimate solution 1 to 1000, having been previously anæsthetised with eucaine, as much pain is excited.

When paronychia develops in children who are

debilitated, and not infrequently suffering from pustules, the affection is more widespread, involving more than one finger and generally both hands. The pain is not so great and the affection runs a more chronic course. It is best treated then, as part of the pustular eczema, with white precipitate ointment and tonics, not neglecting to evacuate pus and expose the diseased part to the antiseptic.

Warts (Verruca) are small, rough, and comparatively insensitive projections from the skin occurring principally on the hands and face or scalp—that is, on parts unprotected by clothing—in young people ; though later in life they are more often met with on covered parts, especially the back. When very numerous, flattened and pigmented, in persons past middle life they are sometimes associated with or appear to be the forerunners of malignant disease of the viscera, as in the disease known as acanthosis nigricans, though they may accompany other complaints such as eczema or leucocythæmia.

The sporadic form, occurring commonly enough singly or in groups, may assume various individual shapes, being flat, irregularly peaked, or filiform. Warts are unsightly, particularly when discoloured by the accumulation of dirt in their interstices, and are apt to bleed or become painful from time to time owing to slight injury. They persist for months or years, growing in size as well as becoming more numerous by the development of fresh ones in the vicinity, though they may at any time disappear spontaneously.

A wart consists of either a papilla or projecting core of the skin containing a small artery and overlaid with a rugged accumulation of corneous cells derived from overgrowth of the epidermis.

Colrat of Lyons has reported cases in which the warts have dropped off under general treatment by

sulphate of magnesia, two or three grains in children and half a drachm in adults being given three times a day. Crocker confirms this, and also suggests full doses of nitro-hydrochloric acid or thirty to sixty minims of the tincture of thuya occidentalis (arbor vitæ) two or three times a day. One or other of these drugs may be employed where the warts are very numerous, or tend to recur, but where there are only a few, local measures suffice and are more speedy. Perhaps the most powerful escharotics are either nitric acid or the acid nitrate of mercury, applied very sparingly to the rugged surface with a glass rod or the end of a wooden match. The fluid permeates the cuticle and gradually affects the core of true skin, completely and permanently destroying the growth. Both these remedies have, however, the disadvantages of discolouring the surface temporarily, causing pain in proportion to the freedom with which they are applied, and leaving a perceptible scar, which may be objectionable on the scalp or face. Less drastic remedies, which are nevertheless effective if less speedy, are liquefied carbolic acid, ethylate of sodium, caustic potash or soda, chromic acid, glacial acetic acid, perchloride of iron, liquor plumbi subacetatis, and a saturated solution of salicylic acid in alcohol. If the caustic alkalis are used, it is well to protect the surrounding skin with wax or paraffin, as they are liable to spread, and while applying the remedy a piece of blotting-paper should be held ready to mop up any excess. Chromic acid is best employed on the bare face of the papilla after removing the horny layer by the previous application of salicylic acid in solution or plaister. Sodium ethylate is prepared by dissolving one part of metallic sodium in twenty parts of absolute alcohol, the vessel being cooled by immersion in a stream of water, and should be applied once daily for three or four days in succession. It causes no pain, and the eschar drops off

of itself. The preparation recommended by Kaposi consists of Sulphur ʒ v, Glycerine ʒ i½, and Acetic Acid ʒ ii½. It should be applied daily. Filiform warts occurring on the face, and especially the eyelids, are most speedily obliterated by snipping off flush with the skin and applying the nitrate of silver point to the base. Thin flat ones may be accounted for by frequent application of the alcoholic solution of salicylic acid alone, while the larger pedunculated forms are best disposed of by the galvanic écraseur or they may be snipped off and the bleeding stopped with pressure and styptics or the cautery.

Corns and Callosities.—It was one of the axioms of John Hunter that pressure from within caused atrophy and pressure from without hypertrophy, and the development of corns and callosities was regarded as a familiar example of the latter. The modern interpretation is broader, regarding constant pressure as the cause of atrophy and intermittent as that of hypertrophy. In the subject under consideration, intermittent pressure associated with the expansion of the arches of the foot as it receives the weight of the body at each step, and the limitation of the boot, accounts for these developments; hard corns over bony projections, callosities of a more diffuse form over yielding parts, and soft corns in moist places, as between the toes, being the rule.

In places not specially exposed to pressure an accumulation of the epidermis closely resembling a corn is sometimes due to a foreign body, such as a splinter of wood or glass or a thorn, lodged below the surface. The development of corns may be prevented by wearing properly fitting boots which allow space for the normal expansion of the plantar arches in walking or standing, and the natural enlargement of the foot in warm weather. Merely loose boots are not necessarily satisfactory, since they are apt to exert pressure nowhere but on the pro-

jecting points where corns especially form. The practice of not wearing the same pair on consecutive days, leaving them on boot-trees in the interval, is a good one, and those who suffer would do well to avoid keeping boots on unnecessarily. The spontaneous cure of corns when boots are dispensed with, as during a sea voyage or illness of two or three weeks' duration, is very striking.

The pain associated with the presence of a corn is increased in very dry or with the onset of wet weather, owing to the increased hardness of the epidermis exerting more concentrated pressure on the underlying nerves in the one case, and the increased vascularity of the superficial tissues in the other. But in addition to exacerbations with atmospheric changes, increase of pain may result from inflammation, or effusion or suppuration in a small bursa formed beneath the hardened skin.

Immediate relief from pain can usually be secured by the removal of pressure, and this is most easily effected by surrounding the projection with a ring of wool attached by gum: the corn-plaisters commonly supplied are too clumsy, and a more satisfactory ring can be made by cutting it out of the raw material, and if necessary reducing it in thickness. This method is quite physiological, equally adapted for hard or soft corns, and if persisted with will effect a complete cure. Subsequent recurrence may be prevented by the application of soap, or diachylon plaister.

The removal of the thickened epidermis may be more speedily effected by careful cutting after soaking in hot water, or by painting twice a day with a solution of salicylic acid, the formula recommended by Vigier being a very good one:

℞. Acid. Salicylic.	gr. xv
Ext. Cannab. Ind. . . .	gr. viij
Alcohol.	♏ xv
Etheris	♏ xl
Collodion. Flexil. . . .	♏ lxxv

If this be continued for a week, the corn will fall off of itself, but may leave the underlying skin pink, thin, and tender for a day or two.

An inflamed corn, whether suppurating or not, must be treated with a cold wet compress for twelve hours at least, preferably through the night, to reduce the tenderness before it can be removed, or the lotion of lead acetate and opium may be used instead. It is not usually difficult or very painful to loosen the periphery, which is softer and generally more raised than the harder centre, but the final separation demands more fortitude. When suppuration has occurred, the difficulty is rather diminished, as there is a cavity beneath the corn communicating with the surface usually at the edge, and by extending this with fine-pointed scissors a radical cure can be effected, though the tender area needs protection from pressure for some days.

The essential point in the cure of soft corns is relief from pressure and moisture, the former by a small felt ring, and the latter if necessary by the use of oxide of zinc powder or alum, but the mere separation of contiguous surfaces is generally sufficient.

Bathing the feet in cold water in the evening, and putting on dry hose after exertion, is not only refreshing, but an excellent preventive of both soft corns and blisters.

Bunion.—This is commonly regarded by the laity as an exaggerated corn, though it is of course much more, but finished off with much thickening of the cuticle over the most prominent part. It is, in fact, a subluxation outwards of the metatarso-phalangeal joint of the hallux, with overgrowth of the base of the phalanx, this being overlaid by a bursa which inflames at intervals, capped by thickened epidermis. There is always a large branch of the long saphenous nerve involved in the bursa, and the vascular supply is generous. As this particular joint is freely exposed to injury, and is moreover the favourite

seat of acute and chronic gout, besides having powerful muscles attached to the movable part, the arrangements from the point of view of torture are as complete as possible. The radical cure of such a condition, when fully developed, involves operation, and will not be entered into here, but in an incipient state something may be done short of this to delay or prevent further development and relieve pain.

In the first place it must be understood that an important, if not the sole cause of the condition, is eversion of the great toe due to wearing pointed shoes with high heels, and the first step must be to secure reasonably shaped boots with straight inner border instead of those usually selected with unlimited latitude across the ball of the foot, leaving the malposition of the hallux uncorrected. If necessary, the great toe may be brought into its proper line by means of a toe-post or brace. Temporary inflammation may be reduced by a cold compress or evaporating lotion, and the corn on the inner aspect removed. Wearing a cap of fairly thick diachylon plaister over the projecting part of the joint will afford some comfort and protection, and when the patient has acquired confidence by walking under the corrected conditions and becomes used to them she will be in a fair way to recovery.

Ingrowing Toenail.—The pressure on the inner side of the great toe has another effect in pushing up the skin on this aspect while doubling up the nail longitudinally; the inner edge then buries itself in the contiguous sulcus, and before long causes painful pressure and ulceration.

The remedy for this disabling state of affairs is to relieve the lateral pressure by allowing sufficient space in the boot for the toes to spread naturally in walking, while softening and thinning the convex portion of the nail by soaking it in hot water and gradually scraping

with glass or a penknife. When this has been done sufficiently to allow the nail to yield to manipulation, a thin strip of oiled lint should be gently packed between the buried edge and the skin with the flat end of a probe. The parts having been sufficiently separated by this device, it may be possible to insert a strip of thin sheet lead beneath the border of the nail and by carrying it round below the toe to gradually reduce the prominent inner border of skin to its proper limits. It is sometimes necessary to suppress a fungous outgrowth of granulation tissue by zinc oxide, red oxide of mercury or lunar caustic, or to adopt the more heroic method of avulsing the nail, and if it continues to grow in a deformed shape to destroy the matrix with carbolic acid or by erasion.

Finger Cracks are really a limited form of eczema rimosum. They occur most commonly across the top of the thumb, and recur with painful regularity in the same place each winter or spring, generally during the prevalence of cold dry east wind. At these times the use of a drop or two of glycerine rubbed over the hands while drying them after washing will keep the skin moist and supple and prevent their formation. The application of pumice stone to the thickened cuticle at the top of the thumb by reducing its thickness will also prevent cracking.

The hands should not be washed more frequently than really necessary; very cold water and soap containing much free alkali should be avoided, and the skin should be completely dried with a soft towel, subsequent evaporation having much to do with the trouble.

Besides reducing the hard edges of cuticle with pumice, salicylic acid plaister or the same drug in collodion may be employed, and later those applications recommended in Cracked Lip. Constantly wearing a rubber cap on the affected part is very beneficial.

Blisters result from separation of the outer corneous layers from the newer and moister epidermal strata of

the outer skin by effusion of serous fluid. Apart from those caused by burns or the application of vesicants, they commonly occur in consequence of unaccustomed pressure or friction associated with moisture, derived in most cases from perspiration. It is only in the palms and soles that the outer layers of the skin are sufficiently thick and coherent to furnish material for the dome of a blister, pressure and friction in other parts leading to thinning and abrasion instead. The development of a blister is accompanied with soreness, which may set a limit to the particular occupation inducing it, and in such case the formation is arrested by subsidence of hyperæmia and absorption of exuded fluid, but the active process is speedily renewed if pressure and friction are repeated within twenty-four hours. On the other hand, if sufficient rest is allowed, a thickening of the epidermis results, which is protective, so that by gradually inuring the skin to unaccustomed pressure, whether in the use of the hands or feet, the formation of blisters may be avoided, and such graduated use affords the best preparation for any continued effort.

Should the irritation be continued without regard to the soreness which attends the raising of the cuticle, the blister will extend in area as well as in height and tension, until it gives way at the margin, discharging the contained fluid, which continues to ooze from the rent for some hours. The worst feature, however, in a broken blister is the admission of air, which dries the new and tender layers beneath, causing them to stiffen and crack on movement, thus prolonging the duration of the sore and affording opportunity for the ingress of septic matter, which may still further increase the injury and retard recovery.

The main object, then, in dealing with blisters is to prevent if possible their extension when they threaten to form, or at all events to anticipate their rupture, and

the exposure of the young skin beneath, either by preserving the natural epidermal covering or by keeping the part from drying and cracking by the application of some emollient such as vaseline or simple ointment.

As a precautionary measure in prolonged marching, some form of woollen covering for the feet is preferable to cotton, and old campaigners recommend soaping the inside of socks or dispensing with them altogether. At the end of the day bathing the feet in cold water is both refreshing and preservative of the skin, and, failing a complete change, the shifting of the right sock to the left foot, after drying, is a useful expedient. Walking with wet feet is to court blisters, and it is worth some delay and inconvenience to avoid this, especially when walking day after day.

Rubbing the skin of the palms and soles with any form of spirit tends to toughen it, and too frequent ablution with soap and water, especially hot water and alkaline soap, has a reverse effect.

If time cannot be given to allow a blister to subside of itself, or if it is already too far advanced to permit of this occurring, a convenient plan is to pass a needle and white thread through one edge and then cut the thread close to the skin, so that the ends just project and supply a wick by which the contained fluid may slowly drain away. This allows the cuticle to fall back on the soft skin beneath without admitting air, and supplies a practical cure even if further effort is resumed. A blister is in itself a small matter, but if neglected, leads to much discomfort, and may involve further trouble through local infection and inflammation of glands.

Blue Staining of the Feet.—During the hot weeks of summer numerous instances have occurred in London, and no doubt elsewhere, of greenish blue indelible patches on the feet of young women. The identification of the colouring matter as indigo has led to

some speculation as to its possible source, either in the action of some microbe on the sweat, or to the actual secretion of the colouring matter in this product of the skin, as in that of the kidneys.

There is, however, no need to seek so far for the cause of this trifling inconvenience. Black stockings, so much in vogue, owe their colour to a process in which indigo is the basis, and the cheaper materials undoubtedly contain a large amount of cotton as well as wool.

It is more than likely, therefore, that these blue stains, so difficult to get rid of, are produced by the sweat in very hot weather, aided perhaps by some decomposition, removing the dye from the material of the stockings and conveying it to the adjacent cuticle.

Though unaffected by ordinary solvents, the stains are readily removed by chlorine water or a solution of chlorinated lime or soda in water. They are only met with on the soles and sides of the feet and toes, more rarely on the dorsum, but always within the area included in the shoes, and might scarcely be considered worth troubling about, except that those affected are often very anxious to get rid of them, and the cause and remedy are not exactly obvious.

Other dyes come off on the feet even more readily, especially red aniline, and may not be so innocuous, causing irritant poisoning of abrasions produced by chafing of the boots in hot weather. These stains, however, are removed by prolonged soaking in water, which is also the best remedy for the superficial inflammation. And it is well not to resume such foot-covering till the skin is sound. Neglect leads to the formation of a chronic and painful sore, with inflammation of the lymphatic vessels and glands. The employment of arsenic in dyeing with red aniline may have something to do with the irritation.

CHAPTER III

THE RESPIRATORY SYSTEM

Sore Throat.—This very common affection is due to many causes, but whether it be the initial symptom or be discovered in the cause of a routine examination, it must not be at once concluded to constitute the entire complaint. Indeed in the majority of cases it is only part of some general affection and not, properly speaking, local at all.

As it is often a very important, and in some cases a by no means easy, matter to obtain a good view of a child's throat, it may not be deemed out of place to suggest the following method :

The nurse should hold the child in her lap facing a good light, steadying the head against her right shoulder by embracing it with her right arm with the hand on the forehead, while controlling the hands and legs with her left.

Sitting opposite to her, and at the same level, with his back to the light, the observer further steadies and directs the child's head by grasping the nape of the neck in his left hand with the thumb in the right ear. While inserting a small spatula with the right hand, the ring finger carries the lower lip near the left corner of the mouth inwards over the lower gum or teeth, effectually opening the mouth. The spatula should not be inserted too far and should touch nothing but the tongue. All movements should be gentle and deliberate.

It may be premised at the outset, particularly in

children, that all the acute specific fevers are accompanied at the onset by inflammatory affections of the tonsils and fauces. To give instances would be practically to cite the whole list, but fortunately for diagnosis, other and more characteristic features accompany or speedily follow the occurrence of sore throat, and if the practitioner has been reasonably guarded in his first expression of opinion and has adopted the usual antifebrile remedies, the case will not have been prejudiced provided further careful watch is kept on developments.

There is, however, one exanthematic sore throat which it is important to recognise at once, both on the patient's account and to avoid the spread of infection. That is diphtheria.

The disease, in spite of advances in bacteriology and serum therapeutics, remains something of a bugbear on account of the difficulty of diagnosis and the irregularity and uncertainty of its course.

There are, doubtless, characteristic features which are only too obvious in a proportion of cases, but they are so variable in occurrence and often delayed so long, that the patient may lose the advantage of serum treatment, which is beneficial mainly when administered within twenty-four hours of the onset, and may even communicate the disease to others before its nature is appreciated. The indications specially relating to diphtheria, some of which are pretty sure to develop in the course of the attack, are: The presence of diphtheritic membrane on the fauces or in the expectoration, loss of knee-jerks, and occurrence of albumen in the urine.

Early involvement of the nares or larynx is also strongly indicative of diphtheria. More particularly in those in whom dyspnœa manifests itself early, in the absence of the foregoing indications, partial or complete suppression of respiratory murmur on one side of the chest or in one lobe of the lung is very significant, and is

a point to be very seriously considered, when meditating relief by tracheotomy, indicating, as it does, deep penetration of the morbid process in certain bronchi, which might render the operation useless. The other general features which characterise diphtheria are pallor, prostration, and an appearance of profound illness out of all proportion to local manifestations, and generally associated with but slight degree of fever or even normal temperature. One or other of these features will probably manifest itself within twenty-four hours, but even that is too long to wait, and there are only too many instances in which no help to diagnosis is afforded other than the finding of the Klebs-Loeffler bacillus or the late development of paralysis either of the heart, respiration, palate, or groups of voluntary muscles.

Recognising the existence of such cases, beyond the limits of immediate certain diagnosis, and the importance of taking definite therapeutic and protective measures at once, many physicians adopt the practice of isolation and the administration of efficient doses of anti-diphtheritic serum, while awaiting the report of the bacteriologist ; and as neither of these measures involves any serious drawback, should the case not prove diphtheritic, comparable to those resulting from their omission if the reverse is the case, it is no doubt a good and safe policy, employed with reasonable discrimination.

It is not intended to discuss here the details and treatment of so serious a malady as diphtheria, but no reference to sore throat should be made without laying stress on this important aspect of the matter.

When pain or discomfort in the throat is complained of, particularly in swallowing, inflammatory changes can usually be recognised in the soft palate, pharynx, or tonsils.

Relaxed Throat.—Dull aching with a sensation of stiffness and actual pain in swallowing, and the sensation of a "lump in the throat," which repeatedly excites that

function together with a dry, harsh, and painful cough, usually indicate this condition. On investigation the smooth portion of the fauces, including mainly the soft palate, uvula, anterior and posterior pillars, but to some extent also adjacent parts of the mucous membrane, are found to be unusually red, tense, and shining, though in a later stage they may look dull, flabby, or actually œdematous. The uvula, especially, becomes elongated, limp, and irresponsive to the semi-voluntary movements involved in deep inspiration. There is no fever.

Much has been asserted in regard to the causation of cough by the contact of such an elongated uvula with the epiglottis or larynx, but when it is remembered that in the sucking infant the uvula normally lies against the posterior aspect of the epiglottis, thus providing a median channel for respiration, while the flow of milk in sucking proceeds on either side ; and, further, that in marine mammals this arrangement persists through life ; contact between the uvula and epiglottis can scarcely be looked upon as an unnatural or disturbing condition. Hence the partial or complete removal of the uvula is not warranted as a cure for this temporary state ; while, on the other hand, when over-strenuously performed, it has led to subsequent escape of fluids and air by the posterior nares, and so to interference with swallowing and speaking. Though occasionally revived, this mistaken practice has fortunately become nearly as obsolete as that of lancing the gums to aid the eruption of the teeth.

In either case, when definite tension or œdema exists, superficial scarification, to release a little blood or serum, secures all the benefit that can be obtained by the use of a cutting instrument, and it is extremely rarely that this is needed at all.

The condition of faucial injection is commonly attributed to exposure to cold moist air, particularly when

breathing by the mouth, and is more likely to occur as a local affection in debilitated subjects. It is then best treated by local astringents combined with tonics.

Gargles and sprays of various kinds are used, but of these, gargling with hot water alone gives immediate relief, and subsequently painting the reddened and swollen parts with glycerine of tannin is usually effective. A very satisfactory astringent is the lozenge of Krameria or of Australian red gum, which should be allowed to dissolve slowly between the cheek and the teeth, precautions being taken against its being inadvertently inhaled while coughing or sleeping.

Rheumatic Sore Throat.—If the fauces be examined in any case of incipient rheumatism, they will be found injected, the mucous membrane appearing bright red. Not infrequently inflammation extends to the tonsils, resulting in follicular or parenchymatous tonsillitis, either of which may be a rheumatic manifestation.

Where arthritis occurs at the same time, little difficulty may be experienced in diagnosis, and under such circumstances the condition of the throat may even be overlooked, or left to take care of itself, provided salicylates are administered internally.

In the absence of arthritis, however—and this is especially the case in children—the change in the throat may be the first indication except the general condition of fever which is usually definite and may be severe (105° F.). Indeed, a rapid onset with high fever and tendency to sweating in a young child, sometimes attended by delirium in the evening, are the principal characteristics of the rheumatic state. It is very important, therefore, in these cases to examine the heart at once and repeatedly, and to give salicylates in efficient doses, as either pericarditis or endocarditis may develop.

The application of a hot fomentation sprinkled with half a drachm of Olei Gaultherii, extending round the front of the neck to the mastoid region on each side, is at once a comforting and curative measure.

Septic Throat.—The distribution of inflammatory changes in the throat is very similar to the preceding, but follicular tonsillitis is the prevailing lesion; there is also a greater tendency to exudation. The initial fever is not so high, the temperature ascending more gradually, but may attain to 103° F. or more on the second or third day.

Occasional rigors, general depression, and, locally, some ulceration are the leading features. What is termed "an ulcerated throat" is septic, though the loss of tissue is quite superficial and rarely leaves any permanent traces. The circumstances in which such a sore throat occurs may be some guide to its nature.

Many instances seen among students in a hospital or medical school are of this kind, and recurring attacks among domestic servants working, and sometimes sleeping, in a basement near sinks and gullies belong to the same category. Most practitioners can recall instances where a recurrence of sore throats in a house has led to investigation and attention to drains, resulting in complete abolition of the attacks.

It may not be out of place here to remark that drains require regular attention and cleansing as much as chimneys, though they do not always receive them, and an enormous amount, not only of definite disease, but general failure of health, as evidenced by loss of energy and appetite, anæmia and headache, attacks of diarrhœa, etc., are really due to sewer-gas poisoning from foul drains, enhanced by insufficient ventilation, both of the house and the drains themselves.

It would be well if such evidence of general septic

influences were notified in the same way as is now compulsory in other specific diseases.

The treatment of septic sore throat requires antiseptics locally, and tonics and stimulants generally.

The following solution—

℞. Hydrarg. Perchloridi . . . gr. ij
Acid. Hydrochlorici dil. . . ℥ij
Glycerini . . . . . ℥j
Aquam destillatam . . . ad ℥x

may be used every two hours, either as gargle, spray, or for swabbing the throat, which should be first cleared of secretion by gargling with a little hot water.

Care must be taken not to swallow the solution, and if any misgiving exists in regard to this, it is better to use the Gargarisma Chlori.—

℞. Potass. Chloratis . . . . ℥j
Acidi Hydrochlorici . . . ♏ xij
Aquam . . . . . ad ℥x

The acid and chlorate are first introduced and allowed to react, till the chlorine gas displaces the air in the bottle, water is then added in small quantities at a time till the gas is dissolved; the bottle being corked and shaken with each addition. One of the following solutions may be used: Potass. Permanganatis, gr. iv to water O. j; Formalin solution (40 per cent.), ♏ j to water ℥j; Acetozone, gr. ij to water ℥j.

The best remedies, internally, are quinine, perchloride of iron, or biniodide of mercury—which may be given as follows: *Mistura Chlori. cum Quinina* (*Burney Yeo*). To Potassium Chlorate, in powder, 30 grains in a 12-ounce bottle, add Hydrochloric Acid 60 minims; cork and shake well to liberate Chlorine; absorb this by gradually adding, and shaking after each addition, distilled water to 11 ounces; add Quinine Sulphate

24 or 36 grains, and Syrup of Orange ℥ j. *Dose:* ℥ j every two, three, or four hours. Other formulæ are :—

℞. Liq. Ferri Perchlor. ♏ xv
Sp. Chloroformi, ♏ x
Glycerini, ♏ xx
Aquam destill. ad ℥ j
Three times a day.

℞. Liq. Hydrarg. Perchlor. ℥ j
Potassii Iodidi, gr. v
Sp. Am. Arom., ♏ xx
Decoct. Cinch. ad ℥ j
Three times a day.

In the acute stage, when there is much fever, the following complex mixture is advocated:

℞. Liq. Ferri Perchloridi . . . ♏ xv
Liq. Hydrarg. Perchloridi . . . ♏ xv
Liq. Strychninæ . . . . . ♏ v
Tinct. Aconiti . . . . . ♏ iij
Potass. Chloratis . . . . . gr. v
Glycerini . . . . . ℥ j
Aquam destillatam . . . . ad ℥ j
Three times a day.

This is powerfully antiseptic and may be gargled or held in the back of the mouth for a moment before being swallowed. It should not be continued for more than two days, by which time the fever will usually have declined. In all these prescriptions glycerine is introduced to prolong the local effect in the throat.

Owing to pain and difficulty in swallowing, nourishment must be given in liquid or semi-liquid form. Milk, beef-tea, arrowroot with milk, and jelly are the most convenient. Fluids taken hot are comforting. All applications to the throat should be made subsequent to taking food, so as to prolong their local effect as much as possible.

In a later stage, when the fever and more acute symptoms have declined, the diet must be liberal, and a mixture of quinine, strychnine, and ammonia, such as the following, should be ordered before meals:

℞. Tinct. Nucis Vomicæ . . . ♏ v
Tincturæ Cinch. Co. . . . ℥ ss
Sp. Ammon. Aromat. . . . ♏ xx
Aquam Chloroformi . . . ad. ℥ j

This does not make a clear mixture, but it is a good bitter aromatic, and tonic.

At this time an allowance of port, brief rest and change of air are old remedies; and even if the patient had not already been in declining health when the attack occurred, he would certainly be enfeebled by it, and will need such restoratives for a week or ten days before resuming work and risking fresh exposure to the circumstances inducing infection, if those cannot be avoided.

It is not pretended that the distinction between these three forms of sore throat is obvious or at all easily made. Rheumatic sore throat, perhaps, is marked by the more abrupt accession of fever, and the local appearances are cleaner and more definitely hyperæmic. Moreover, recurrence of the affection in the same individual under different circumstances, the persistent enlargement of the tonsils as a legacy of previous attacks, and the early response to salicylates aid in the diagnosis.

Even greater is the difficulty of discrimination between the septic and diphtheritic cases. It might even be said that both are septic and that the latter differs only in having the specific organism of diphtheria superimposed upon the common infection.

In the absence of bacteriological investigation, the distinction will depend on the tendency of diphtheria to extend early to adjacent areas, and to give rise to distinctive symptoms, though, as has been previously stated, these may develop too late to aid the initial diagnosis.

With the exception, however, of the use of antidiphtheritic serum, the remedies that have been suggested are alike beneficial in the simple septic throat and that affected by diphtheria, being as strongly antiseptic as is compatible with safety.

Follicular Pharyngitis.—A sensation of pricking-soreness or stiffness in the throat, with cough and,

sometimes, alteration in the quality of the voice, usually indicate this complaint, which commonly follows the inhalation of some irritant. By far the most common cause is tobacco-smoking, but it may result from dust, or the fumes in a chemical laboratory. The malady affects the back of the pharynx and is characterised by a dry glazed condition of the mucous membrane with raised red spots representing the inflamed lymph follicles. With avoidance of the cause, the condition usually subsides, but it is readily excited again.

Local remedies are not easy to apply, as the region is scarcely to be touched without exciting swallowing or retching. Some relief may be obtained by sucking marsh mallow, black currant or glycerine jujubes, or the compound benzoic acid lozenges of the London Throat Hospital (Ac. Benzoici gr. ½ in red-currant basis).

In this and other forms of vascular injection, a spray of adrenalin solution (1–1000) has an immediate remedial effect, but requires to be repeated in two or three hours.

Catarrhal Sore Throat.—It occasionally happens, and in some individuals with greater frequency than in others, that an ordinary catarrh commences in the neighbourhood of the soft palate, constituting for some hours a sore throat. The infection soon spreads to the nares or trachea, or both, so that the nature of the attack is soon evident, and it is only worth while referring to it here to suggest that full development may be sometimes prevented by applying to the palate and fauces the remedies suggested farther on as curative when the complaint commences in the nostrils.

Catarrh.—What is commonly called a "cold" in the head, chest, or throat is really an infective inflammation of the mucous membrane. Though it is fully accepted that such an affection is transferable from one person to another—and instances are in every one's

experience where the malady, once introduced, has passed from one member to another throughout a household—people still cling to the notion that catarrh arises *de novo* from exposure to cold.

Ill consequences result, no doubt, from sudden or prolonged exposure to cold, but catarrh is not one of them, as witness the absence of such troubles in the many arctic expeditions and their rarity in open-air life under any circumstances, to say nothing of the fact that some of the worst attacks of the kind occur in the hot weather. This much may be conceded, that prolonged exposure to a low temperature when inactive, or sudden chill when overheated, lessen resistance and predispose to microbic invasion. Furthermore, cold, and inclement weather compel many to lead an indoor life, which is the reverse of invigorating, and commonly tend to a limitation of ventilation; but the most usual source of infection is a crowded gathering under cover, which supplies an overheated, vitiated atmosphere, and is seldom wanting in the elements of infection.

The onset of nasal catarrh is usually marked by irritation within one nostril, which may be expressed by slight soreness or tickling, sneezing or thin watery discharge, accompanied by slight fever manifested by "chilliness." It is in this stage that the attack may be aborted by appropriate treatment, though it will not be denied that subsidence may occur spontaneously.

The remedies that have been advocated are all either antiseptics or astringents.

The most convenient formula is a liquid which may be sprinkled on the handkerchief and inhaled:

℞. Terebene
Ol. Eucalypti
Camphor
Menthol
āā ʒ j

Eau de Cologne may be added if desired, but the

combination as it stands makes a very powerful aromatic germicide. If kept in readiness and freely inhaled as soon as the early irritation is experienced, subsequent development of catarrh is often avoided.

Another convenient remedy is menthol snuff, but it is neither so cleanly nor efficient as the fluid. Those who have been initiated into the use of the nasal douche may apply a weak antiseptic solution, but a special contrivance is necessary and the knack has to be acquired. The douche consists of a glass vessel with a capacity of an ounce or more having an opening at the top which can be closed by the finger, and a nozzle below to fit the nostril. Its use is perfectly simple but requires a little confidence.

Having filled the douche while the lower opening is closed by the thumb, a finger is placed over the upper opening, thus retaining the contents by atmospheric pressure.

The nozzle is then inserted into one nostril, the head being thrown back and slightly inclined to the opposite side over a basin. On releasing the finger capping the upper orifice, the fluid is delivered steadily, and provided the user breathes boldly through the mouth, it will run round the back of the soft palate and out at the other nostril. Should, however, the breath be held, or an inspiration be taken through the nose, the fluid will pass into the throat or even into the larynx, and a bad fit of choking result.

The collunaria mentioned may be used in a simpler manner by sniffing them into the nostrils from the palm of the hand, but this is not so satisfactory.

Whatever ingredients be used, the fluid should approximate to the "normal saline solution," otherwise uncomfortable smarting will occur. As the mucous membrane is highly sensitive, any reagents employed must be well diluted. In addition the fluid should be

slightly alkaline and of the same temperature as the blood.

Glycothymoline, though expensive, is satisfactory, otherwise a solution of Bicarbonate of Soda or Borax, 4 grains of either to the ounce of water, may be employed as a basis, to which may be added ♏ xx of Hazeline or a minute quantity ($\frac{1}{20}$ grain) of Menthol. Alum gr. v ad ℥j; Liq. Potass. Permanganate ♏ vj ad ℥j; Sulphate of Quinine or Zinc gr. ½ ad ℥j; and

Dobell's Solution

℞. Glycerini Acidi Carbolici . . . . ♏ x
Sodii Biboratis . . . . . gr vj
Sodii Bicarbonatis . . . . . gr vj
Aquam ad . . . . . ℥j

are also employed.

When a catarrh has passed the initial stage of infection and irritation, it is beyond the influence of nasal douches, sprays, or inhalations, and may be expected to run its course with but little modification by remedies. The entire thickness of the mucous membrane is then involved; active congestion, swelling, and soon increased secretion, passing through the stages of mucus and mucopus, marking its progress. The air passages are more or less obstructed and there is either sneezing or cough, and some degree of fever. Recourse must then be had to general principles, in order to diminish the severity and shorten the course of the affection while relieving the discomfort of the more prominent symptoms. A hot bath and some hot wine negus or spirit and water, with perhaps the addition of half a drachm of sweet spirits of nitre, are homely remedies. The patient should retire early and have an extra blanket or two on the bed, which should be warmed so as not to check the action of the skin, started by the hot bath.

A saline purge in the morning is useful both as re-

lieving the fever generally and diminishing the degree of swelling or secretion in the mucous membrane.

These measures are not incompatible with the usual routine of life, for it is not every one who will seclude himself on account of an attack of catarrh.

Nevertheless, for the sake of avoiding conveyance of infection to others, as well as to ensure speedy recovery and the avoidance of more serious developments, confinement to one room or even to bed is strongly recommended. To "feed a cold and starve a fever" is an old adage, but perhaps it would be more practical to suggest that solid food for the one and liquid for the other should be the rule.

Reducing the amount of liquid taken to the smallest possible minimum has a decided effect in reducing the nasal discharge, which constitutes the leading feature in a "cold in the head."

The only medicine likely to be of service in the course of the complaint is quinine, which may be taken as the ammoniated tincture in drachm doses every four hours before meals for three or four days, or the following mixture may be substituted:

℞. Tinct. Nucis Vom. . . . . ♏ v
Tinct. Cinchon. Co. . . . . ʒss
Sp. Am. Arom. . . . . ♏ xx
Aq. Chloroformi . . . . ad ʒj
Every four hours.

At the outset it is not always evident whether the chief manifestations will be in the head or in the chest. If the initial change is in the throat, it commonly extends to both, and a cold in the head not infrequently spreads later to the trachea and larger tubes, especially if no precautions have been taken. Provided there are no constitutional conditions or idiosyncrasy to prohibit it, a 10-grain dose of Dover's powder at night is one of the best remedies for a feverish cold in an adult. Salol in 10-grain

doses in cachet twice or three times a day will mitigate the feverish and catarrhal symptoms in the early stage.

For laryngeal catarrh, characterised by loss of voice and painful brassy cough, chloride of ammonium in 10 or 15-grain doses every four hours is a suitable remedy. It can be given in solution with compound tincture of camphor and syrup of tolu.

Adrenalin spray or local application of Gaultherium Oil, ʒ j in a hot fomentation or as an ointment ʒ ij to Lanoline ℥ j over the front of the neck at night will do much to restore the voice, often within twelve hours.

When there is much irritation, with cough and oppression of breathing, the inhalation of vapour from ʒ j of Tincture of Benzoin and a pint of boiling water, gives much relief.

The readiest method is to place about a pint of boiling water with the tincture in a jug, and then wind a folded towel round it, so that this projects three or four inches above the top; serving the double purpose of retaining the heat, and providing a close soft face-piece.

Tracheitis.—Catarrh of the mucous membrane of the windpipe, which constitutes a "cold in the chest," may either occur primarily from exposure to infection, or may be due to extension from the nose or larynx. Neglect and exposure to cold and moist, or extremely dry, air, especially when coming out of a warm room, may lead to further involvement of the bronchi and serious illness. Whatever risks are taken in connection with nasal catarrh, it is certainly perilous to keep about and go out of doors with either laryngitis or tracheitis.

The symptoms are very definite—a scalding or burning sensation behind the sternum, rough breathing, and a hoarse frequent and painful cough with definite rise of temperature. There is at first complete dryness, then a thin irritating and scanty expectoration followed by more copious mucus and muco-pus as the acute stage

subsides. The voice is always hoarse in some degree, and attempts at speaking provoke cough. The expectoration may be tinged or streaked with blood.

Household remedies are the application of a mustard poultice to the upper part of the chest for ten minutes and sipping simple linctus or a mixture of equal parts of lemon juice and either honey or glycerine, or equal parts of Tinct. Camph. Co., Oxymel scillæ, and lemon juice. A milder, but still effectual, modification of the poultice may be made by rubbing about a teaspoonful of dry mustard flour into a piece of wadding, placing this on the chest and covering with a sufficiently large piece of wet oil-silk or protective to extend an inch beyond it all round. When this is pressed down, the free edge adheres to the skin and the warmth of the body liberates the essential oil, producing a mild irritation which can be borne, without fear of blistering, all night. The counter-irritant effect is thus prolonged and the chance of marking a delicate skin diminished. The general treatment should be the same as that employed for nasal catarrh, but some demulcent is acceptable such as rum and warm milk, thin gruel or milk arrowroot with brandy or whisky on going to bed; the same principles in regard to diaphoresis and purgation being observed.

If the complaint does not yield to these measures, and especially if there is a tendency for inflammation to extend into the bronchi with increase in fever and dyspnœa, the following prescription, the type of the sedative expectorant, should be ordered :

℞. Vin. Antimon. . . . . ♏ x
Vin. Ipecac. . . . . ♏ x
Sp. Æth. Nitros. . . . . ʒ ss
Liq. Am. Acet. . . . . ʒ ij
Syrup. Limon. . . . . ʒ j
Mist. Amygdal . . . . . ad ʒ i

Every four hours.

And later, when secretion is established and fever declines :

℞.	Ammon. Carb.	gr. v
	Tinct. Camph. Co.	♏ xx
	Syr. Scillæ.	ʒss
	Syr. Tolu	ʒj
	Inf. Senegæ	ad ʒj

Every four hours.

this being the type of the stimulant expectorant.

These remedies are suitable for otherwise healthy adults, but it is as well to state that ipecacuanha and antimony are too depressing to be used when the heart is not sound, either in the presence of valvular disease or the more obscure condition of myocardial degeneration with weak and irregular pulse.

Squill and carbonate of ammonia are both irritants, and they must be eliminated should nausea or vomiting ensue. To infants or children opium, even as the camphorated tincture, should not be given, owing to their peculiar susceptibility.

Though carbonate of ammonium acts as an irritant in concentrated solution, it may be given in much larger doses properly diluted. Dissolved in a tumblerful of milk, 10, 15 and even 30 grains can thus be administered without discomfort, acting as a reliable stimulant, especially in those cases where an expectorant is required.

In all cases of tracheitis and bronchitis, one of the most important matters to observe is the maintenance of a uniformly moist and warm atmosphere. This assists greatly in allaying irritation and spasm, and is especially necessary during a dry, cold north-east or east wind. The object is best attained by a steam jet which not only moistens the air, but raises the temperature rapidly and is an efficient deodoriser.

For children the following mixture is generally useful, half the quantity being given to infants :

℞.	Vin. Ipecac.	℥ ss
	Tinct. Scillæ	℥ ss
	Sp. Am. Arom.	℥ ss
	Glycerini	℥ j
	Aq. destill.	ad ℥ jss

Dose: ℥ j-ij every four hours.

Cough.—Dwellers in towns, particularly during the winter, are prone to habitual cough with slight greyish expectoration, which is particularly noticeable in the mornings. This is only the natural reaction of the bronchial tubes to the irritation of inhaled soot, usual under such circumstances, and does not call for any treatment, nor need it give rise to any anxiety, but must be looked upon as one of the penalties of modern civilisation.

Apart from pulmonary disease, cough may be a source of annoyance both to the individual affected and perhaps still more to his neighbours. Absence of expectoration and the accompanying rattle in the throat usually characterise cough dependent on causes remote from the respiratory system, which, being dependent on less urgent stimulation, is usually absent during sleep.

Dryness or inflammation of the fauces or pharynx commonly causes sudden and impulsive cough, with watering of the eyes and often retching. Some persons even suffer in this way on cleaning the teeth. Gargles or demulcent pastilles are the appropriate remedies, and as the symptom prevails most when getting up or going to bed, the use of these agents may be limited to those occasions.

A more frequently repeated dry cough is sometimes associated, especially in children and young adults, with the irritation associated with nasal obstruction, foreign matter in the external auditory meatus, or bad teeth, and these causes of disturbance should be looked for and remedied, rather than having recourse to drugs.

Another group of causes is subdiaphragmatic, in-

cluding morbid conditions of the liver and kidneys, but especially disorders of the stomach and colon. The loud barking cough of boys and girls—more often the latter—from eight to twelve or fourteen years of age—which from its long persistence sometimes leads to fears of grave thoracic disorder—will generally be found to yield to rhubarb and soda and proper supervision of diet. It is generally associated with a furred tongue, capricious appetite for plain food, and recurrence of "bilious attacks"; the tendency at this age to hurry over meals without proper mastication, and to supplement them with more attractive and less wholesome articles of diet, being largely responsible, though defective teeth may have a share in the disorder.

The condition is indeed one of chronic catarrh, and oftentimes dilatation, of the stomach, which yields to a proper regimen and occasional dose of Gregory's powder, the Pulvis Rhei Co. of the Pharmacopœia. In young women and girls from fourteen years upwards, such cough may be due to the same condition, but perhaps more often to constipation, and is more conveniently treated with the Compound Rhubarb pill or Cascara Sagrada, which may be administered in capsules representing half a drachm of the liquid extract, or more agreeably as the Aromatic Syrup of Cascara ʒ ss–ij. These are by far the commonest forms of dry cough, and the most assertive, being particularly in evidence in schooldays.

There is, however, one variety even more noisy, frequent, and demonstrative, and that is the hysterical cough of young women. I was once consulted in such a case, the paroxysms being so violent that the buttons flew off the patient's dress in all directions, and had it not been for the persistence and recurrence of the attacks and the general characteristics of the individual, the diagnosis would have been whooping cough. In such

cases bromide and valerian combined with some disciplinary supervision are required.

One word of warning may perhaps be necessary before leaving the subject of dry and paroxysmal cough, and that is to insist on a careful examination of the chest, so as to exclude any local physical conditions before attributing the cough to remoter causes. In rare cases, mediastinal growth or aneurysm may be present, or the irritation may proceed from adherent pleura or enlarged bronchial glands, or be due to whooping cough itself. Indeed, the frequency with which the latter complaint is said to follow measles may be accounted for by the presence of adenitis of the bronchial glands.

Dry, irritant cough, due to remote causes which cannot be directly remedied, is best checked by some preparation of opium; morphia, codeia or heroin.

Pleurodynia.—Pain in the side is commonly regarded as coming into the category of the respiratory system, though with the exception of that due to pleurisy this is not exactly correct. The pain, usually referred to the infra-axillary region, may have one of three sources of origin, which may be discriminated by the effect of pressure with the hand.

If there is hyperæsthesia, excited by the lightest stroking or pinching the skin, the complaint is probably *Neuralgia*, either associated with anæmia or with herpes, preceding or following the appearance of the characteristic rash. The anæmic form may be relieved by the administration of Quinine and Iron (5–10 grains of the combined citrates), the Syrupus Ferri Phosphatis cum Quinina et Strychnina (℥½–j), or a mixture of Iron and Arsenic as follows:

℞. Tinct. Ferri Perchlor. . . . . ♏ x
Liq. Arsenic. Hydrochlor. . . . ♏ v
Glycerini . . . . . ℥ ss
Aq. Chloroformi . . . . . ad ℥ j

Three times a day after food.

Locally some relief may be obtained by the local application of Anodyne Colloid covered with moist spongiopiline, Linimentum Belladonnæ or Linimentum Chloroformi ℥ j with Menthol ʒ j, the Belladonna plaister, or the recently introduced compound of salicylates and menthol known as *Kasemol*.

For herpetic pain the same local remedies may be applied, but constitutional ones are less efficacious. If antipyrine fails, one must have recourse to morphine when the suffering is very severe. The following prescription may benefit:

℞. Sodæ Salicylatis . . . .
Sodæ Bromidi . . . . .
Antipyrin. . . . . } āā gr. x
Aq. Camphoræ . . . . ℥ j

Three times a day.

When there is not superficial hyperæsthesia, but deep tenderness of an aching character is elicited by pressure, the condition is most likely *Myalgia*. The best remedies then are salicylates both internally and externally.

Aceto-salicylic acid (aspirin) may be given in 10-grain doses in cachet or tabloid, and oil of wintergreen may be applied locally, either ʒ j in a hot fomentation or ʒ ij to ℥ j of wool fat. This may either be gently rubbed into the skin or may be applied on a strip of linen or lint. If the patient is in bed, a hot rubber water bottle placed against the painful region affords rapid relief.

The third variety of pain is a combination of soreness or aching, with acute stabbing paroxysms on coughing or taking a deep breath. There may be a slight rise of temperature and the patient usually holds the side with the hand when coughing or moving, or involuntarily suspends respiratory movement in some degree on the affected side. Flicking or percussing excites tenderness, but gentle and firm comprehensive pressure with the whole hand, sufficient to restrain the movement of

the ribs, gives ease. This is *Pleurisy*. In many cases friction may be heard with the stethoscope, but not in all.

The most efficient treatment consists in strapping the side (Dr. Fred. Roberts). It is an advantage to soften the surface of the plaister with turpentine instead of heat, as this acts as a counter-irritant besides ensuring a good grip.

Two strips, two inches wide and long enough to cross the middle line in front and behind, should be applied diagonally in an X shape, crossing at the seat of pain. Each strip, held firmly over the spine, should be carried round the chest and fixed at the end of expiration. After a day or two the strapping may need re-adjusting, as it is apt to loosen with the movements of the chest.

Temporarily holding the affected side of the thorax with the hand is of value in estimating the probable effect of fixation on the pain and also on respiration, for in those cases where this is already much embarrassed by existing pulmonary disease, fixation is not tolerated. Recourse must then be had to leeches or counter-irritation, such as painting with a preparation of iodine or applying mustard or emplastrum calefaciens.

Dry pleurisy is an occasional accompaniment of bronchitis and emphysema, or may occur from exposure to cold or trauma, but is more often associated with constitutional disease such as gout, rheumatism, renal disease, and pulmonary tubercle, which should be carefully sought for.

Stitch in the Side.—This common phenomenon, familiar to every one, generally accompanies unusual exertion, particularly after a meal, or in those unaccustomed to violent exercise. The pain is nearly always referred to the hypochondrium on either side, though it may ascend as high as the nipple, and has all the characters of the pleuritic stab.

It is due to desiccation of the serous membrane not necessarily of the pleura, the peritoneum being sometimes involved, but always in the region of the diaphragm, and appears often to be associated with turgescence of the liver or spleen during digestion. This desiccating effect of movement on the serous membrane is fully recognised and has been made use of in hastening the absorption of chronic pleural effusion.

The pain is so sharp and so closely bound up with respiratory movement that it effects its own cure, by bringing the patient to a standstill, and causing him to support the affected area with his hand. After subsiding, it is very apt to recur with renewed exertion, but ceases to give trouble as the subject becomes inured to exercise, especially if he avoids taking it immediately after a meal.

A stitch in the side is so transient, and the circumstances in which it occurs do not afford opportunity for auscultation, or a friction rub might be heard.

In the course of disease affecting the liver or spleen, such as infarcts, new growths, and passive congestion or inflammatory hyperæmia, a similar but more persistent pain occurs, increased by respiratory movement or cough and accompanied by audible friction. This is amenable to the same remedies as pleurisy.

CHAPTER IV

NERVOUS SYSTEM

Insomnia.—Except in the treatment of definite and acute affections and on special occasions the use of drugs should be entered upon very guardedly in dealing with insomnia. In otherwise healthy people in whom a bad night or two may be looked upon in the light of a minor disorder, the correction of some physiological error may be all that is needed to guard against a recurrence. Overfatigue, especially when associated with a late and undigested meal, is a common cause of failure of much-wanted sleep, even in those who are young and active. On such occasions a warm bath following a light and digestible meal with more than the usual quantity of fluid, preferably hot, makes the best preparation for retiring. Otherwise the inclination to sleep should be combated till sufficient time (three hours) has been allowed for the primary stages of digestion and the elimination of some of the waste products of the muscles. On the other hand, an empty stomach is a watchful companion, so that in seeking rest five hours or more after the last meal, sleep is best secured by some light nourishment such as soup, milk, gruel, arrowroot, chocolate, or warm milk alone. Sometimes on waking during the night from a similar cause a biscuit or piece of chocolate is sufficient to restore repose. A loaded colon, a stomach dilated with gas, often from drinking aërated waters late at night, or intestinal flatulence will prevent or disturb sleep.

Undue excitement of the brain up to the time of going to bed, excess of tobacco or taking tea or coffee late in the evening may have the same effect, and it is sometimes overlooked in the treatment of invalids that such drugs as strychnine, caffeine, and theobromine given for other purposes may exert a similar influence. Conditions less obvious to the patient are variations from the normal in the circulation. Perhaps the most persistent cause of sleeplessness is high arterial tension, which may be associated with chronic renal disease and arterio-sclerosis, or may occur occasionally from some disturbance in the digestive tract. Port wine exercises such an influence in some individuals, especially if taken in the evening. This is best remedied by a warm bath before retiring. Allied to this state is the presence of rigid arteries in the brain, chiefly in old age, which interferes with the adjustment of the cerebral circulation. In the opposite direction, the enfeebled vaso-constrictor action in anæmia and debility, convalescence after acute disease, especially typhoid fever and influenza, and in Grave's disease, allows of dilatation of the cerebral arteries automatically on lying down, so that such subjects often fall asleep more easily when sitting up if sufficiently supported, as in a "grandfather's chair." It need hardly be mentioned that undue cold or heat, noise and light, or the attempt to maintain a position incompatible with complete muscular relaxation, are all opposed to satisfactory rest.

In dealing with insomnia, as with other prominent symptoms of disturbed function, it is therefore obvious that very nice discrimination is needed both to attain a satisfactory result and to avoid needless injury. It is just as unreasonable to apply soporifics without judgment in the relief of sleeplessness as it is to employ analgesics unthinkingly in subduing pain. Each in its way is an indication of a pathological condition which should be carefully investigated and suitably dealt with, the

objectionable symptom in each case disappearing with the correction of the underlying cause. As an expedient in either case, some remedies may be applied to the direct relief of the symptoms while the cause is removed or when this cannot be discovered or corrected.

In its serious and persistent form, such as precedes or accompanies acute attacks of insanity or is associated with serious organic disease, no symptom is more distressing and damaging, or more difficult to control, than the inability to sleep. Such powerful remedies as are called into requisition on these occasions can only be administered with the utmost precaution and watched with the most anxious care; these are morphine and hyoscyamine, chloral and even chloroform.

In the restlessness of pneumonia, pleurisy or pericarditis, especially when pain or dry cough is present, in the early stages, small doses of morphine ($\frac{1}{6}$ or $\frac{1}{4}$ gr.) give great relief, and delirium may entirely disappear under its influence, or after the sleep it induces, but it should of course not be administered when cyanosis is present, as it would dangerously deepen the stupor of asphyxia. In cardiac disease, too, where restlessness and sleeplessness are prominent features leading on to delirium, the timely exhibition of this drug affords much benefit. It is best administered hypodermically in combination with strychnine and atropine, a good formula being Morphine gr. $\frac{1}{3}$, Atropine gr. $\frac{1}{120}$, and Strychnine gr. $\frac{1}{30}$ in 6 minims of water; half this dosage, viz. 3 minims, usually suffices, especially after the first administration. In all instances, in which there is pain, morphine is the best hypnotic, but in neurosis and mental restlessness the bromides alone or in combination with chloral are better and safer.

The bromides of Potassium, Sodium, and Ammonium (gr. x of each) with ♏xx of Sal Volatile and Chloric Ether and ♏ iij of dilute Hydrocyanic Acid in ℥ j of Peppermint water make a good combination.

Undue excitement of the brain up to the time of going to bed, excess of tobacco or taking tea or coffee late in the evening may have the same effect, and it is sometimes overlooked in the treatment of invalids that such drugs as strychnine, caffeine, and theobromine given for other purposes may exert a similar influence. Conditions less obvious to the patient are variations from the normal in the circulation. Perhaps the most persistent cause of sleeplessness is high arterial tension, which may be associated with chronic renal disease and arterio-sclerosis, or may occur occasionally from some disturbance in the digestive tract. Port wine exercises such an influence in some individuals, especially if taken in the evening. This is best remedied by a warm bath before retiring. Allied to this state is the presence of rigid arteries in the brain, chiefly in old age, which interferes with the adjustment of the cerebral circulation. In the opposite direction, the enfeebled vaso-constrictor action in anæmia and debility, convalescence after acute disease, especially typhoid fever and influenza, and in Grave's disease, allows of dilatation of the cerebral arteries automatically on lying down, so that such subjects often fall asleep more easily when sitting up if sufficiently supported, as in a "grandfather's chair." It need hardly be mentioned that undue cold or heat, noise and light, or the attempt to maintain a position incompatible with complete muscular relaxation, are all opposed to satisfactory rest.

In dealing with insomnia, as with other prominent symptoms of disturbed function, it is therefore obvious that very nice discrimination is needed both to attain a satisfactory result and to avoid needless injury. It is just as unreasonable to apply soporifics without judgment in the relief of sleeplessness as it is to employ analgesics unthinkingly in subduing pain. Each in its way is an indication of a pathological condition which should be carefully investigated and suitably dealt with, the

objectionable symptom in each case disappearing with the correction of the underlying cause. As an expedient in either case, some remedies may be applied to the direct relief of the symptoms while the cause is removed or when this cannot be discovered or corrected.

In its serious and persistent form, such as precedes or accompanies acute attacks of insanity or is associated with serious organic disease, no symptom is more distressing and damaging, or more difficult to control, than the inability to sleep. Such powerful remedies as are called into requisition on these occasions can only be administered with the utmost precaution and watched with the most anxious care; these are morphine and hyoscyamine, chloral and even chloroform.

In the restlessness of pneumonia, pleurisy or pericarditis, especially when pain or dry cough is present, in the early stages, small doses of morphine ($\frac{1}{6}$ or $\frac{1}{4}$ gr.) give great relief, and delirium may entirely disappear under its influence, or after the sleep it induces, but it should of course not be administered when cyanosis is present, as it would dangerously deepen the stupor of asphyxia. In cardiac disease, too, where restlessness and sleeplessness are prominent features leading on to delirium, the timely exhibition of this drug affords much benefit. It is best administered hypodermically in combination with strychnine and atropine, a good formula being Morphine gr. $\frac{1}{3}$, Atropine gr. $\frac{1}{120}$, and Strychnine gr. $\frac{1}{80}$ in 6 minims of water; half this dosage, viz. 3 minims, usually suffices, especially after the first administration. In all instances, in which there is pain, morphine is the best hypnotic, but in neurosis and mental restlessness the bromides alone or in combination with chloral are better and safer.

The bromides of Potassium, Sodium, and Ammonium (gr. x of each) with ♏xx of Sal Volatile and Chloric Ether and ♏ iij of dilute Hydrocyanic Acid in ℥ j of Peppermint water make a good combination.

The peculiar watchfulness, apprehension, and intrusion of unwelcome ideas associated with the restlessness from high arterial tension should be distinguished from the persistence of grief, worry, or anxiety which may be a direct preventive of sleep, and call for such a nerve sedative as that just mentioned, whereas the other does not.

A review of the numerous hypnotic preparations with their special uses would be a more elaborate matter than is here contemplated, but it may be suggested that when sleeplessness is associated with neuralgic pain, Antipyrin, Butyl Chloral, or Chloretone in 5–15-grain doses is indicated. In neurasthenic conditions, Chloralamide, Sulphonal, Trional or Tetronal in doses of about 20 grains should be given in cachet, or dissolved in spirit and hot water. The combination of equal quantities of sulphonal and bromide of potassium is specially effective. Hedonal in cachet of 8–15 grains is useful under similar circumstances, and Urethane, which is readily soluble, may be given in 5–15-grain doses to children or subjects of mania, being specially devoid of danger.

As general hypnotics which are free from disagreeable effects, Proponal and Veronal in doses of 7 grains or more are to be recommended, and Dormiol in gelatine capsules containing a similar amount is effective. As a substitute for opium and morphine, Codeine or Heroine can be used; they are specially useful where there is irritable cough, and the last need be given only in very small quantities such as $\frac{1}{25}$ grain. Paraldehyde is almost the only soporific, if we except alcohol, which can be regarded as rather stimulant in its action, and is safe and specially useful in organic heart and kidney disease, often promoting diuresis, and in asthma and arterio-sclerosis tending to diminish spasm. Preparations of lettuce and hops, not omitting the "hop-pillow," may be suggested in what may be termed fanciful insomnia, and in weaning patients from the habitual

use of hypnotic drugs sugar of milk increasingly substituted is a convenient agent.

Narcolepsy.—This state may be regarded as the antithesis of insomnia, one term indicating inability to sleep, the other inability to keep awake.

The feeling of drowsiness is irresistible, continuing day and night, so that the subject may even sleep standing or walking, and it requires considerable physical disturbance to rouse the patient : in this resembling the condition produced by narcotic poisons.

The affection is uncommon and usually temporary, occurring for the most part in young women, apparently as a result of auto-intoxication from the defective metabolism of proteids associated with constipation.

The remedy consists in abstinence from meat and reduction in nitrogenous food generally, while securing regular action of the bowels and suitable exercise.

Cephalalgia.—Headache is often a prominent feature in febrile states, anæmia, renal disease and arterio-sclerosis, and is specially severe in intra-cranial diseases such as meningitis, cerebral softening, tumour, or abscess. Under these circumstances it is persistent and associated with other manifestations which incapacitate the patient, and render the underlying state evident on careful investigation. Perhaps the least obvious of these causes is chronic Bright's disease, in which the headache is commonly of a dull heavy character, located especially in the occipital region extending to the back of the neck. It occurs on waking in the morning, and is often accompanied by vertigo, and in advanced cases temporary aphasia and failing sight. A persistent headache with these characteristics, particularly in an individual at or past middle life, should always suggest an examination of the urine.

Excluding serious disease, in which headache is merely a painful incident, there are a number of causes producing this trouble in persons of all ages who are otherwise in

relatively sound health. It is only necessary to mention among these the effect of a close atmosphere with overcrowding, a frequent cause of headache associated with attending places of worship or amusement, or resulting from sitting or sleeping in small ill-ventilated rooms—a common practice in towns of closing windows and even chimneys to exclude dust and soot contributing very materially to this. Wearing a heavy, hot, or ill-fitting hat for hours at a time, in men, and a close arrangement of super-abundant hair in women, are provocative of this symptom, and on the other hand with insufficient covering, exposure of the scalp either to heat or cold, as in sitting under a lamp or in a draught, has a similar effect. Habitual breathing by the mouth instead of by the nose is also productive of headache, as is seen constantly in cases of adenoid growths, obstructed nostrils, and enlarged tonsils. Besides the inhalation of products of respiration, or coal gas, emanations from drains and such vapours as nitrite of amyl, ammonium sulphide, sulphuretted hydrogen, and other chemical or putrefactive vapours are similarly productive of pain referred to the head with giddiness and nausea.

In a state of health the brain appears to be insensitive; but as in the case of ligaments and tendons, acute sensibility may develop in connection with inflammation or tension. Pain in the head may therefore reasonably be ascribed directly to the brain when intra-cranial tension is increased by undue vascularity or exudation with ventricular distension.

Inflammatory states of the membranes, as in meningitis, are productive of acute suffering, and vascular disease, whether acute as in syphilitic arteritis, or degenerative as in senile atheroma, is also usually accompanied by aching in the head, which may precede apoplexy or thrombosis.

In addition to intra-cranial changes, disturbances in

the nerves of the scalp also lead to pain and tenderness referred to the head, either in actual fibrositis or neuritis with soreness along the course of the nerves or in neuralgia with intermittent pain referred to their areas of distribution, and tender spots at points of emergence through bone or fascia.

In addition to these sources of headache, others of more general, vague, or transitory occurrence are attributed to "toxæmia" and vascular spasm, associated probably with irregular blood supply causing anæmia or flushing of particular areas.

Pain, with more restricted distribution, and greater intensity and persistence, may be associated with abscess, aneurysm, new growth, or nodes.

From the practical pointof viewof diagnosis, prognosis, and treatment, headache may be considered as persistent, periodically recurring, and occasional : its causation being more or less definitely established in this order. That is to say, a persistent headache is usually due to organic disease, either within the cranium or in some important organ elsewhere. Within the cranium such conditions as meningitis, concussion, abscess, tumour, and arterial degeneration or thrombosis may be instanced, the pain being in many instances localised either about the ear or occiput, usually very severe and subject to exacerbations.

The consideration of severe and persistent headache due to organic disease within the cranium will not be entered upon here, except to point out the great importance of its early recognition, which may be aided by the occurrence of impromptu vomiting, altered reflexes, constant vertigo, and the presence of optic neuritis, paralysis of cranial nerves, marked increase of pain on coughing, stooping, or lying down, and other evidence of intra-cranial pressure.

The opportunity must be taken also of pointing out the imperative duty of applying such anti-syphilitic

remedies as mercury, the green iodide especially, and iodide of potassium in large doses, since a considerable proportion of such cases prove amenable to this treatment. Where no relief follows and the presence of syphilis is excluded, recourse must be had to such drugs as Acetanilid in doses from 2 to 15 grains, Exalgine 2 to 5 grains, or Morphine in adequate amount to subdue the pain; while considering the advisability of surgical measures.

Causes outside the cranium are for the most part changes in the blood-stream, either in the direction of variations in quality, quantity, or pressure, or the presence of injurious matters resulting from morbid processes within the body, or introduced from without; to which may perhaps be added impressions conveyed through the nervous system in chronic disease of the pelvic organs from which the former cannot be traced.

Persistent headache should therefore lead to a systematic examination with a view to the discovery of such organic disease, and the relief of the headache should be looked for in the remedy of the primary malady, rather than in the application of anodyne measures *ad hoc*.

The discrimination of these various causes of headache is no easy matter, and when decided upon alleviation is not always readily obtained. To consider first abnormalities of the circulation. These include excess or diminution in the quantity of blood distributed to the head, which is commonly apparent in the colour of the face and neck, and is further characterised by suffusion of the conjunctiva and a sense of throbbing, with exacerbation of pain on stooping or in the horizontal position when due to overfulness of the vessels.

This form of headache accompanies plethora, fever, alcoholic stimulation, and the effect of drugs which excite circulatory activity in more than a moderate degree, such as the vascular dilators and tonics, and commonly accom-

panies palpitation of the heart from excitement, exertion, or disturbance of digestion.

The vascular dilatation and tension may be either active and arterial or passive and venous. The former rules in Grave's disease, fever, plethora, and stimulation, and the latter in mediastinal pulmonary or cardiac disease —chiefly of the mitral valve—associated with obstruction to the circulation and dilatation of the right cavities of the heart; though undue constriction of the neck or waist by tight clothing may have a similar effect.

Headache occurs in both conditions, but is more definitely throbbing, accompanied by visible pulsation of the temporal and other superficial arteries and flushing of the face in the active form, while a dull aching and tendency to cyanosis with fulness if not actual puffiness of the face characterises the passive. In either, lowering the head, whether in lying down or stooping, and cough increase the pain, and may be accompanied by vertigo and a sense of fulness.

The treatment of headache associated with congestion is necessarily bound up with that of the more general condition.

Purgatives are valuable in both the active and passive forms, particularly salines and the aperient mineral waters in combination with small doses of calomel or mercury. In arterial hyperæmia and over-activity of the heart it may be advisable to give small doses of such depressants as antimony, aconite, and iodide of potassium, the latter especially in gouty conditions.

In the passive form of venous congestion, benefit is more likely to be obtained by digitalis or strophanthus. But in either, opium and its derivatives are contra-indicated, and strychnine usually increases the headache, as do the vascular dilators, though either may be needed for their general effects.

In febrile affections and vascular excitement associated

with headache, great relief is often afforded by cold to the head—which is most effectually applied in the form of an indiarubber bottle filled with iced water or shaved ice, wrapped in a towel and placed under the nape of the neck. It is more constant in its effect than either evaporating lotion or an icebag, acting as a sedative to the circulation and reducing fever.

When the pain in the head is very acute, especially when inflammatory in origin, the application of one or two leeches below or behind the ear has often the speediest effect in relieving it, while for milder cases the hot mustard and water footbath is beneficial.

There are instances in plethoric and gouty subjects where headache is so intense that the patient loses control of himself, and in such, the removal of 20 to 30 ounces of blood by venesection is necessary, and affords the most rapid means of relief. This, combined with full doses of iodide of potassium and saline purgatives, subdues the pain at the time, but subsequent attacks will occur unless restraint in food and stimulants is practised.

In the opposite direction of anæmia, whether primary or secondary, headache is of very much more frequent occurrence, and the altered conditions of the blood make it practically impossible to decide whether the deficiency in the normal constituents or the presence of abnormal ones is the more important factor. But undoubtedly the most constant complaints of headache come from young women suffering from chlorosis with gastric symptoms and constipation, where these states are combined; though simple oligæmia from recent hæmorrhage is also productive of the symptom, sometimes in an acute degree.

In the latter instances, the preparations of opium, especially morphia, so generally given to combat the circulatory and nervous excitement attending serious hæmorrhage, appear to control the headache also, or at

least to produce a state of quiescence which mitigates the suffering.

For the most part in anæmia the physician is chiefly concerned in restoring the blood to a normal condition, and the remedies applied for this purpose, principally arsenic and iron in one form or another, with suitable laxatives and graduated diet, ultimately remove the headache.

Temporary exacerbations are often benefited by light nourishment or relieving the bowels or by one of the drugs recommended in the paroxysmal form of headache, to be presently considered. In those too-common instances where gastric disturbance with vomiting, and even hæmatemesis, render the administration of most drugs by the mouth unsatisfactory, chloretone in 5-grain doses, in cachet or petroleum emulsion, may prove of service, but this failing a hypodermic injection of morphine is the most effective remedy.

Periodically recurring headache is apparently functional—that is, associated rather with physiological than anatomical changes. The most familiar examples are migraine, clavus, brow ague, tic douloureux, and neuralgia. It cannot be said that there is any marked regularity in this periodicity except in the case of brow ague and neuralgia, which may keep time by the clock; but the recurrence, though irregular in time, is marked by close similarity in the site and character of the pain though there may be variations in severity, and subsidence between the attacks is complete.

Hemicrania.—This paroxysmal complaint, the leading feature of which is one-sided headache, whence it derives this name or the abbreviated one of migraine or megrim, is essentially a functional disease. There is no ascertained morbid anatomy, it arises and subsides in an otherwise healthy subject, and in the intervals of the attacks there is usually perfect health. In these respects

the analogy is very close with epilepsy, the one being a sensory and the other a motor disturbance. Either complaint is most apt to commence soon after puberty, the paroxysms acquiring a regular periodicity or being determined by some unusual strain or excitement.

The degrees of migraine attacks in respect of frequency and severity have a close parallel with those of epilepsy, in which the *haut mal* and *petit mal* are commonly distinct, the one being characterised by severity, and the other by frequency of occurrence, while each remains for the most part habitual in the same individual.

There is a further similarity in that either paroxysm is usually inaugurated by minor nervous disturbances termed the "aura," and often preceded by an altered disposition or diffuse sensation appreciable by the patient and referable possibly to altered vascular tension due to the presence of some toxic material in the blood. Exceptional cases have been met with in which motor and sensory attacks have occurred alternately or where one has supervened on the other, but these are so rare as to suggest coincidence rather than consequence, and do not excite any anxiety that the subject of migraine may become epileptic.

It has been suggested that spasmodic contraction of a cerebral artery might account for an epileptic attack, which is sometimes unilateral or at least unequally developed on the two sides, the motor manifestations in this pointing to the middle cerebral artery as the seat of disturbance. The region concerned in the manifestations of migraine, particularly the evidence of disturbed function in the abdominal viscera, points to the distribution of the anterior cerebral artery to the inner surface of the hemisphere forming the sides of the longitudinal fissure, the terminal portion corresponding to the visual area, in which the change usually commences. Both in epilepsy and migraine the onset is attended with pallor of the face,

suggesting contraction of the arterioles, which is apparently of brief duration, being followed by dilatation and flushing of the corresponding areas. It may be this restoration of the circulation, rather than the initial contraction of arteries, which brings about the severe headache and visceral disturbance which quickly succeed the inaugural symptoms, very much as the restoration of circulation in the nerves and tissues of the extremities after prolonged exposure to cold or pressure is associated with acute aching.

An attack of migraine is preceded in many individuals by a feeling of vigour and mental activity due to rising arterial tension, lasting an hour or two, and then giving way to the recognised aura. This, which corresponds to commencing arterial spasm and anæmia of the affected portion of the cortex, takes the form of a central scotoma in the visual field, so that the patient is unable to see the point of his pen, the words he is reading, or the face of the person he may be talking to, though surrounding objects not exactly in the central point of vision may be as clear as usual. Peripheral vision, however, is interfered with by the appearance of " zig-zags " or " lines of fortification," as they have been called, plain or coloured, and black spots. These phenomena are quite transitory, and as they subside in the course of a few minutes to half an hour, the characteristic one-sided headache develops, rapidly acquiring great intensity and concentrating on the eyeball and corresponding mastoid region, though extending vaguely to the brow, temple, and occiput. Meanwhile the countenance becomes pale, the temporal arteries hard and small, and the intelligence clouded, the patient feeling bewildered, prostrated, and often faint, so that he is compelled to lie down.

Considerable variations occur in different people, the visual aura being sometimes more complex and ideational, or other special sense being concerned such as the auditory,

but commonly the aura assumes very much the same character in the same person with subsequent attacks, though producing less impression as familiarity is acquired. The growing intensity of the hemicrania is attended with a condition allied to collapse with moist skin, chilliness, muscular and nervous prostration, and soon a sensation of nausea attended in most cases by actual retching. Any food which has been recently taken is ejected practically unchanged, but the vomited matter consists mainly of mucus, bile, and watery fluid containing organic acids. Though the act of vomiting is distressing, some relief usually follows, but the headache continues, the patient becomes more apathetic, resents any disturbance, avoids light and noise, dozing and then sleeping except when roused by the profuse secretion of pale limpid urine which occurs for some hours in the later phase of the attack.

During the early part of the paroxysms the mouth is dry, there is complete anorexia, the stomach rejecting any food or even liquid that may be taken, and there is arrest of bile secretion judging by the occurrence of flatulence and pale fæces. These indications of marked nervous disturbances in the secretory organs are accompanied also by partial suppression of urine, though diuresis is the first function to be re-established. The entire attack usually lasts six to twelve hours, but as it commonly commences in the early part of the day the patient is unfit for anything till after a night's rest and the re-establishment of the digestive functions next morning. Curiously, in this complaint, though the malady is distressing and incapacitating while it lasts and the subject of it quite unable to take or digest any food for twenty-four hours, the usual or even an improved feeling of health is immediately restored when it subsides. As far as can be judged the incidence and recurrence of migraine are associated with exhaustion of the nerve centres. The disorder commences most often in connec-

tion with severe study, deprivation of sleep, anxieties or excessive social excitement, and recurs with a kind of periodicity which may nevertheless have some relation to causes of nerve exhaustion, disturbance of digestion, or menstruation.

The attacks usually become less frequent towards middle life, the intervals becoming longer and the seizures themselves less severe, but it is difficult to estimate when they cease, and in some instances they continue into old age, this being itself an indication that they exert no influence in shortening life or introducing other complaints, being indeed quite compatible with sound health and long life.

All do not suffer to the extent indicated in the above description, and for the most part, after the first few seizures, there is some mitigation and shortening of them, also the attacks appear to be less severe as they are more frequent, so that many who experience them once or twice a week escape with merely a headache and loss of appetite for a few hours, and are often capable of carrying on routine work.

In the most typical cases the tendency to migraine appears to be hereditary and spontaneous; though perhaps accentuated by some general interference with robust health, such as sometimes accompanies the adoption of serious studies, or the responsible duties of life particularly in cities: for it has been noted that the bucolic temperament is seldom associated with the complaint, and a free open-air life is often enough to effect a cure in those who are subject to it. In more pronounced cases the attacks, like those of asthma, commence in late childhood or soon after puberty, and may be more frequent or severe and less amenable to treatment.

It is necessary, however, to state that a very considerable number of individuals apparently become subject to attacks of migraine without hereditary predisposition,

and, maybe, at a later period of life, as a result of some local injury or disorder, the attacks being generally very similar, but wanting in some particulars. These have been alluded to as "reflex migraine." Such are commonly associated in women with menstruation and chronic disease of the pelvic organs, and have in both sexes followed on head injuries, chronic inflammatory conditions of the appendix, gall bladder, stomach and other abdominal viscera. The attacks associated with organs of special sense such as errors of refraction may also be regarded in this light.

The importance of being on the alert to recognise this aspect of the case lies in the fact that the cure of the local lesion, where possible, is the most direct road to recovery, and may be the more willingly undertaken, even by surgical means, since the migraine is often not the only manifestation, though the most obvious to the patient, and may lead to the discovery of chronic or progressive disease which undermines the patient's health generally, and may even prove ultimately fatal.

The great difficulty in the treatment of migraine lies in the uncertainty of its periodicity, so that it is almost impossible to be beforehand with remedies, while on the other hand when once the attack is established, absorption from the stomach ceases and internal remedies then have little or no effect. At the very commencement, during the stage of vascular contraction, and before the headache has definitely commenced, the following mixture may arrest the attack:

℞. Liq. Trinitrini . . . . ♏ ij
Acid. Hydrobrom. dil. . . . ♏ xx
Aquam . . . . . ad ℥ ss
Twice, with one hour interval.

If taken as early as possible when the onset is threatened or recognised, there are three drugs which may

mitigate the severity of the paroxysm. These are phenacetin, phenazone, and chloretone.

On account of their depressing effect the two former drugs are usually combined with caffeine citrate.

℞. Phenacetin . . gr. x Caffein. cit. . . gr. v	℞. Phenacetin . . gr. x Butyl Chloral. . . gr. x

℞. Antipyrin . . gr. x
Caffein. cit. . . gr. v

In cachet or as a powder.

Half as much again may be taken as a single dose on a subsequent occasion if this does not prove effective in the first attack, but it should not be repeated. Migranin (Antipyrin Caffeino-citricum) in 8 to 15-grain doses may prove of service if this fails and has the advantage of being freely soluble and consequently more readily absorbed.

Phenacetin may also be conveniently given as the granulated effervescent salt containing 5 grains in the drachm.

Chloretone, which is a comparatively new drug and not very soluble in water, may be taken in doses of 10 to 15 grains in powder or cachet under similar circumstances. The effect of these remedies may be to add to the prostration which naturally accompanies the complaint and may in addition induce diaphoresis and sometimes vertigo, so the patient should remain quiet and preferably recumbent while under their influence.

No food should be taken while the attack lasts. Usually there is no inclination for it, but solicitous relatives have often a mistaken idea about maintaining the strength in any illness. It is a peculiarity of this complaint that exhaustion does not follow the short abstinence, and when the seizure has passed off the appetite and power of digestion and assimilation are restored at once. The only thing at all acceptable is tea, which may be taken at intervals according to inclination

and in stronger infusion than usual. At the end of the attack, a cup of soup or of milk arrowroot or gruel with a little spirit may be taken before retiring for the night, if the patient feels equal to it.

In the more frequently repeated but less severe attacks in which prolonged headache is the leading symptom the following combination of drugs is often beneficial:

℞. Phenazoni . . } ää gr. x
Ammon. Bromidi . . }
Sod. Salicylatis . . }
Aq. Camphoræ . . . ad ℥j
Every two hours till four doses have been taken.

When the intervals between the attacks are long, three to six months or more, it is hardly to be expected that patients will adhere to irksome precautionary measures, beyond partial relaxation of mental application, paying attention to the regularity of the bowels, and perhaps increasing somewhat the daily allowance of fluid; but when seizures occur at shorter intervals—and they may do so more than once in a week—it is essential to secure mental rest for a time and a more open-air life while taking regularly fractional doses of calomel followed by saline laxatives. A generous diet is advocated with sufficient vegetables and fruits, and for a few weeks at all events such nerve tonics as quinine and guarana.

℞. Quinin. Muriat . . gr. ij
Tinct. Guaranæ . . ℥ss
Acid. Hydrobrom. dil. . ♏ xx
Aq. Chloroformi . . ad ℥j
Three times a day before meals.

It is advisable also to look for and if necessary correct any local source of nerve-strain or irritation such as error of refraction or disease in the teeth or nose; though this does not necessarily at once abolish the attacks. These appear to be precipitated by some special cause of nervous

exhaustion associated with general depression of health, and it is this which so often determines a seizure at some critical and most inconvenient time, such as the period of an examination, of some particular social engagements, or perhaps the eve of a journey, when extra demand is made on the nervous system.

Clavus Hystericus.—This is usually described as an intense boring pain in one temple, the vertex, or occiput, occurring from time to time in women who are the subjects of other hysterical manifestations such as the globus hystericus, emotional attacks, and hysteroid convulsions, one or other of which paroxysms it usually succeeds. From the written descriptions in most of the older text-books, it would appear that this particular form of headache and the more active hysterical complaints with which it was associated were of commoner occurrence in former generations than at present, when the passive form of neurasthenia prevails.

Such a local headache must be regarded and treated as part of the general complaint. It is transitory and is best met by a mixture containing Bromide of Potassium gr. xx, and Ammoniated Tincture of Valerian ʒ j in camphor-water, though the combination of Phenacetin gr. x and Citrate of Caffeine gr. v has a more immediate effect. Seclusion and quiet are of chief importance until the pain subsides, and it is well to be on guard against hasty recourse to opiates, as in such cases the opium habit is peculiarly liable to be acquired, and, at the best, frequent repetitions of the sedative are likely to be called for.

The pill of Butyl Chloral Hydrate gr. iij made up with Glycerine of Tragacanth and perhaps with $\frac{1}{200}$ gr. of Gelseminine Hydrochloride is also useful.

Brow Ague, which, as its name implies, affects the supra-orbital nerve in those who are the subjects of malaria, is a very intense form of neuralgia recurring at

definite intervals for a number of successive days at the same hour. It may be either intermittent or remittent, and at its worst is so severe as to exceed the limits of self-control which can be exercised by the patient; and raises suspicion of tic douloureux or organic disease. The patients are commonly anæmic and debilitated, and the complaint may be identified by its periodicity and the history of exposure in malarial districts. The two drugs most effective as remedies are quinine and arsenic, which must be quickly raised to full dosage and given for some days, till the pain entirely ceases to recur.

Instances in Great Britain are exclusively met with in foreigners or those who have resided abroad, and being of rare occurrence, are liable to be overlooked. I can recall a good example in a Pole who on account of the great severity of the attacks, which resisted the ordinary remedies, was about to be trephined as a case of central tumour, but who was at once relieved by Liq. Arsenicalis in 10-minim doses. When the attacks recurred eighteen months later, they were allayed by the same drug.

Tic Douloureux.—This, the most intense form of neuralgia, is fortunately very rare. It has been observed in elderly people and has been associated with the taint of insanity. It is remarkable for the suddenness and intensity of the paroxysms, lasting from a few seconds to a minute at a time, but recurring often at short intervals.

The pain is accompanied in many cases with muscular contractions, lachrymation, and flushing or pallor on the affected side of the face or scalp. It quite overcomes the self-control of the patient, and when it subsides leaves him in a shaken and apprehensive state, which has culminated in some instances in suicide.

The causation of the malady is obscure, but those cases in which foreign bodies, scars, and neuromata have

been discovered in association with the fifth or other nerves, and whose removal has been attended with relief, would suggest a very careful search for any lesion of the kind.

The condition of the patient is so pitiable that he will submit to the most complex, dangerous, and extensive operations in the hope that either death or cure may terminate his sufferings and terrible apprehension. Many have submitted to excision of nerves and to removal of Meckel's or the Gasserian ganglion in the hope of obtaining relief.

Many years ago an elderly man under the care of Mr. Henry Morris underwent an operation for division of the infra-orbital nerve at the back of the orbit, without avail; subsequently in the course of an examination of the mouth preliminary to excision of the superior maxilla a small shotlike body beneath the mucous membrane of the cheek was touched, bringing on a severe paroxysm. The removal of this put an end to the attacks.

Other cases have been recorded in which the excision of cicatrices or foreign bodies has been attended with a like result, but unfortunately these are a minority, and in most instances the attacks recur in spite of surgical treatment. Recently cases have been benefited by the injection of osmic acid or alcohol into the affected nerve.

The drugs which can be suggested as likely to be of service here are few. Where no local lesion can be discovered, and particularly where the pain is not limited to the distribution of a single branch of nerve, arsenic in full doses should be tried, the amount being raised by degrees to 15 or even 20 minims of the liquor given after meals and washed down with a good quantity of fluid. The drugs employed in the more ordinary forms of neuralgia may be given in full doses, especially exalgin, acetanilid, and chloretone, but pending more definite measures recourse must be had to the hypodermic injection of morphine.

Neuralgia.—The pain arising in connection with the cranial nerves differs from headache in general in its strict limitation to particular branches, more especially to those of the fifth, being almost always limited to one side. There is also a peculiar periodicity in the attacks, which tend to recur at the same hour each day. The character of the pain is less dull aching than penetrating and varied by sudden darting or shooting pangs, which may be so sudden and severe as to cause involuntary jerking of the head. Another characteristic feature is the presence of painful points, apparently located in the regions where the nerve in its course perforates resisting structures such as bone or fascia, these points being tender on pressure. Neuralgia is very much more frequently associated with anæmia and debility than with plethora or even a normal state of the blood, though in these latter it may occur as a result of inflammation of the nerve sheath and fibrous stroma or in consequence of peripheral irritation.

In treating neuralgia, therefore, these possibilities should be borne in mind. An otherwise healthy individual may develop neuralgia in consequence of continued irritation from a diseased tooth, sometimes even when this does not give rise to local trouble, and may not reveal abnormality on a cursory inspection.

Another fruitful source is eye-strain from refractive error, when the vision is closely applied to fine work or in reading. Such errors may go unnoticed for a time when the eyes are not so used or while the young ciliary muscle is competent to overcome the defect, so that the difficulty may not assert itself till study or the requirements of application bring them into prominence, and the compensatory powers of accommodation fail.

Such sources of nerve irritation and exhaustion are quite competent to give rise to neuralgia and still more to

attacks of migraine, but they are more frequently determining causes in the presence of more general failure of health attended by anæmia and loss of vigour from chronic maladies or undue confinement within doors.

In women, leucorrhœa and constipation are often additional factors, and chronic poisoning by sewer gas should not be overlooked.

Peripheral irritation, unsatisfactory blood-states, and rheumatic or gouty inflammation of the nerve sheaths and stroma constitute the chief factors in the causation of this painful malady.

The treatment must necessarily correspond, and consists in discovering and remedying any of the above-mentioned recognised causes of the disorder, while applying those drugs which have been found to alleviate the pain. The most important of these are butyl chloral, phenazone, caffeine, Cannabis indica, gelsemium, quinine, theobromine, acetanilid, pyramidon, and exalgin. As many of these are insoluble, they are mostly given in cachet or tablet, and may advantageously be combined. The following are convenient formulæ :

℞. Butyl Chloral Hydrati . . gr. iij
Gelseminini . . . . gr. $\frac{1}{10}$
Glycerini Tragacanthæ . . . q.s.
(To make one pill.)

Two such pills to be taken at first, and one hourly till six have been taken or the pain subsides.

Antipyrine or Phenazone is usually prescribed alone, or as a definite compound such as Antipyrin Caffeino-citricum (Migranin) 5 to 15 gr. or as Aceto-pyrine in combination with acetic and salicylic acids, either in powder or cachet ; but being soluble in water it is often employed in mixture. The following is particularly useful in influenza and the headache associated with it :

℞. Antipyrin. . . .
Sod. Salicyl. . . } āā gr. x
Pot. Bromid. . .
Aq. Cinnamomi . . . ad ℥ j

Cannabis Indica is best given in pill, $\frac{1}{4}$ to $\frac{1}{2}$ grain of the extract being administered alone or in combination with a similar quantity of the extract of Nux Vomica. It has been employed in supra-orbital neuralgia and in headache associated with mental worry and sleeplessness.

Gelsemium in 5 to 15-minim doses of the tincture is prescribed with Bromide of Ammonium or Potassium for facial neuralgia, especially in connection with carious teeth, and may be repeated every six hours. As above stated, Gelseminine, the alkaloid, is also combined with Butyl Chloral in the proportion of $\frac{1}{200}$ grain to 3 grains in pill or tablet.

Theobromine, Caffeine, and Guaranine are closely allied in constitution and therapeutic effect. In addition to their influence in reducing the pain of neuralgia, they exert a stimulant influence on the heart, and it is usual to employ them on this account in combination with such remedies as Phenazone, Acetanilid, and Phenacetin. They, however, belong to a class, akin to xanthin and uric acid, known as purin bodies, which are associated with gout, and are productive of arterial tension and sleeplessness, so should be prescribed only in view of these limitations.

The coal-tar products Phenazone, Pyramidon, Phenacetin, Acetanilid, and Exalgin, with some others, are usually given in combination with the preceding. If given alone they are most conveniently taken as the effervescent granular preparations, in which a suitable dose is contained in one drachm.

These preparations are, if anything, too alluring, and in those who are frequently liable to headache are

commonly taken too often and with detriment to health.

One of the best is the combination of Phenacetin and Caffeine Citrate containing 5 and 2½ grains respectively in the drachm.

These drugs, valuable as they are in ordinary neuralgia, are specially applicable to those cases in which pain is dependent on recognisable organic disease, such as cerebral or spinal tumours, locomotor ataxy and neuritis in its various distribution, such as sciatic, cervico-brachial, musculo-spiral, and intercostal. Where a rheumatic factor is present the combinations with Salicylic Acid, such as Diuretin (Theobromine Salicylate), Salipyrin, (Antipyrin Salicylate), and Salicylate of Quinine or Aspirin (Salicyl Acetic acid) are specially suitable.

Satisfactory as one or other of these remedies may prove in an actual attack of neuralgia, none of them exerts a permanent influence in removing the disorder or preventing recurrence. Furthermore, in most instances the beneficial effect is lessened with repetition, so that larger doses have to be employed, and such may produce undesirable collateral symptoms and exercise a harmful influence on health.

On this account recourse must needs be had to an alternative, and this no doubt accounts for the number of such drugs which are recommended in common affections like neuralgia and insomnia.

It may indeed be pretty generally concluded that when a plurality of remedies are advocated for the same complaint, none are really effective; and one might even argue that the curability of any malady is in inverse proportion to the number of so-called cures. Perhaps no disorder offers such a striking example of this as sciatica, in which remedies are so numerous and instances of speedy recovery so few.

It is, therefore, extremely undesirable that the treat-

ment of neuralgia should be limited to the administration of analgesics, though these are of value in subduing pain while more radical treatment is carried out.

For the most part this consists in eliminating some faulty state of the system by correcting constipation, indigestion, malarial taint, or local disease of teeth, nose, eyes, or ears, or, most common of all, the blood.

In a very large proportion of cases anæmia and debility are responsible for neuralgia, particularly in women. Losses by hæmorrhage or discharges must be arrested and the waste made good by ample diet, change of air, and tonics.

Many are the emasculated forms of iron which have been recommended and laboriously produced, with the idea that they are unirritating or more closely allied to the organic combinations in which the metal is disposed in the organism. Modern analysis and research have done much to dissipate the notion that ferruginous preparations are beneficial on account only of being directly assimilated. More iron is prescribed in a day, if not in a dose, than would be normally contained in the entire body of a healthy person; and it has been shown not only that such large doses appear beneficial in chlorosis, but that most if not all the metal is recoverable in the fæces, indicating that apart from absorption the presence of the iron in the digestive tract effects some beneficial change, partly at all events by counteracting other chemical bodies by producing insoluble combinations. This may be the case with ammonium sulphide and sulphuretted hydrogen, since the iron is disposed of as sulphide and these compounds are capable of entering into undesirable combination with hæmoglobin.

The administration of iron should be associated with moderate purgation, free dilution, and efficient dosage. It is this which no doubt accounts for the favourable effect of ferruginous mineral waters when

other methods have failed, combined as it usually is with a regulated diet, open-air exercise, and early hours.

In the treatment of neuralgia in young anæmic women the following formula will often be found effectual, especially when rheumatism occurs:

℞. Sodæ Salicylatis . . . . . gr. xx
Ferri et Ammon. Cit. . . . . gr. v
Sp. Am. Aromat. . . . . ♏ xxx
Aquam Chloroformi . . . . . ad ℥j

Three times a day.

Recent experience has also shown that the combination of arsenic with iron is usually more effectual in curing anæmia than either taken alone. The following rather crude formula has the merit of having proved its efficiency in a number of cases:

℞. Tinct. Ferri Perchloridi . . . . ♏ x
Liq. Arsenici Hydrochlor. . . . . ♏ v
Glycerini . . . . . ℥ss
Aquam destill. . . . . ad ℥j

Three times a day after food.

The scale preparations of Citrate of Iron with Quinine or Strychnine or both are very suitable. Quinine and Iron may be given in doses of 5 to 10 grains, but the introduction of Strychnine requires caution as to dose, that of Strychnine and Iron being 1 to 2 grains and that of Quinine, Strychnine, and Iron 2 to 6 grains.

Sufficient dilution is obtained by giving these drugs directly after meals and washing down the medicine with a tumblerful of water.

A saline purgative may be added, but it is usually more convenient to order a sufficient quantity of aperient mineral water to be taken the first thing in the morning.

Bearing in mind the observation that hæmoglobin

is broken up in the day and built up at night, during the period of rest, it is an important adjuvant to the treatment to enjoin a prolonged period of rest, say a night of twelve hours, while this is being carried out; at the same time securing efficient ventilation in the bedroom and a due proportion of outdoor exercise or exposure without fatigue during the day.

The diet must be adjusted to the digestive capacity. In many instances pain or discomfort after food is a prominent symptom, and if sufficient nutriment cannot be comfortably assimilated, the patient should be kept in bed, or at all events free from fatiguing exertion, till the supply of food can be raised to fairly normal proportion. After milk and eggs, animal food may be given in the form of sheep's brains, tripe, sweetbread, or calf's head, such things being easier of mastication and digestion than actual meat. Flat fish, similarly, is more suitable than other kinds.

The coarser sorts of fish and poultry, unless boiled almost to a pulp, are really less digestible than meat, and it is certainly a mistake to regard them as "invalid diet" in cases of gastric disturbance or inefficiency.

Green vegetables, especially lettuce and spinach, and fruit are valuable additions to the meal.

But the main object is to get the patient on a liberal and nutritious régime as speedily as possible, discouraging merely tempting and fancy confections which are no substitute for food, though they may be taken in addition by healthy folk, perhaps without hurt. As a result of bad teeth and defective appetite young women not infrequently forsake simple wholesome food in proper quantities for what are considered delicacies, and a dietary of tea and confectionery will often be found a precursor of the ultimate attack.

The question of change of air constantly arises in these cases, and when other matters have been set right, is

generally beneficial. Besides climatic change, residence away from the usual surroundings generally means freedom from business worries or harassing domestic affairs and makes for rest; but precautions should be taken, as far as possible, against the indifferent cooking and defective food arrangements often experienced in primitive country places or at the seaside.

For the most part in debilitated, anæmic subjects a dry and relatively cool atmosphere is to be selected, such as is found on the East Coast of England or at an elevation of some 500 feet. In older people with high arterial tension, a warm and moist atmosphere, such as that of the South and West Coasts and river valleys, is preferable, and this also suits the excitable and so-called neurotic subjects best, but in either case the patient should not go till convalescence is fairly established.

Occasional Headaches depend on a variety of causes, vary greatly in character and intensity, are more diffuse or difficult to localise, and do not, so far as we can determine, involve any particular structure—that is, are not traceable to the area of distribution of any special nerve or artery as in the previous group. They have more the character of what have been termed "massive pains" and are not usually to be compared in acuteness with those in either of the preceding groups.

For the most part "occasional" headaches are not associated with serious organic disease, they occur at long intervals, are of brief duration, constituting the minor ailments of otherwise healthy people, and so come more particularly into the domain of minor medicine.

The presence of deleterious substances in the blood as a result of disturbed functions would appear to be the commonest factor, though this may have a direct influence in producing altered distribution of blood by disturbing heart action or altering peripheral resistance, locally or generally. It is certainly noticeable that such

headaches are associated with flushing or pallor of the face, alteration of the complexion and suffusion of the eyes with either fulness or depression around them, and change from the normal size of the pupil. The lids look heavy, and altogether there is an altered appearance in the face that does not escape an observant person who is familiar with the patient. The commonest source of such toxins is the digestive tract, especially indigestion, constipation, and interference with the action of the liver.

These disturbances have already been sufficiently dealt with in a preceding chapter, and there is no need to consider them further here except to suggest in persistent cases such remedies as the effervescing citrate of magnesia, artificial Carlsbad Salts (Kutnow's Powder), or a mixture containing laxative and stomachic drugs such as the following:

℞. Succi Taraxaci . . . . . ℥ss
Sodii Sulphatis . . . . . ℥ss
T. Nucis Vomicæ . . . . . ♏ v
Sp. Am. Arom. . . . . ♏ xx
Aquam Chloroformi . . . . . ad ℥j

Three times a day before food.

Taraxacum is not officially regarded as a potent remedy, but the above combination has proved of service in many cases.

What may be termed "toxic headache" results from the action of poisons introduced from without or generated in the body often complicated by secondary effects such as direct irritation of nerves or contraction of blood-vessels, which are very difficult to distinguish.

Poisons from without which are productive of headache include carbon dioxide, carbonic oxide, and acetylene derived from deficient ventilation, overcrowding, and the combustion of coke or gas in stoves with defective draught, or in the latter case which "light back." The

inhalation of fumes in a chemical laboratory, in some manufacturing processes, or from defective drains may produce headache in a few minutes which may last a considerable time. Perhaps the only remedy is a sojourn in fresh air, but such experience should be avoided or the circumstances corrected. Toxic headache is also produced by alcohol and lead.

The autogenetic poisons, apart from those associated with recognisable digestive disturbances and constipation, are derived from faulty or excessive metabolism, being in most cases due either to excessive production or defective elimination; such are the causes of headache in fatigue, in fever, and in gout.

In fever, headache is best relieved by reducing the temperature and giving fluids; one of the most striking features of cold bathing for typhoid fever when in vogue was the subsidence of this symptom.

Cold applications to the head are still employed, either as some form of ice-cap or as evaporating lotion, but the most comfortable and effective arrangement is the ordinary rubber water-bottle, filled with cold water or shaved ice and placed under the nape of the neck, wrapped in a smooth towel.

Most of the antipyretic drugs exert a definite influence on headache, and this is true not only of the coal-tar products, but also of such diaphoretics as acetate of ammonia and nitrous ether.

Fatigue headache is a common experience of over-exertion, whether physical or mental; less familiar perhaps, as a recognised cause, is the over-use of the special senses, but excessive stimulation of the eyes, of the ears, and sense of smell are certainly productive of fatigue associated with headache, which appears to be seated, so far as it can be localised, in the forehead. The sense of fatigue is often closely bound up with want of food, and the headaches so common in visitors to large cities

are usually the result of this complex causation and are generally to be remedied by rest and food with nerve stimulants such as tea, coffee, or alcohol.

The headache from active study often associated with cold feet, and perhaps produced largely by stooping over a book in a close atmosphere, calls for exercise and fresh air, and is best remedied by a short brisk walk. This is a common experience in student life. Perhaps the best remedy for such headaches in modern times has been the bicycle.

Chloride of ammonium has frequently proved of great value in various forms of headache, when given in adequate doses (10 to 30 grains).

For headache in gouty subjects which is liable to be persistent and recurring, and usually associated with high arterial tension, iodide of potassium appears the most reliable drug. It should be given in moderately large doses, 10 grains being generally sufficient, but it must be continued regularly for some days, and accompanied by saline purgatives and a reduced amount of animal food.

Some individuals are prone to headache from climatic conditions, whether due to variation in the direction of the wind or to change of locality—such headache is either referred to a cold dry air, described as bracing, or to the opposite state of moist warmth, known as relaxing. The first may be met by a combination of Iodide and Bromide of Potassium or by a mixture containing Potassium Citrate, Acetate of Ammonium, and Nitrous Ether; while the other is in a measure counteracted by Nux Vomica combined with Quinine and Ammonia.

Unless, however, headache is really severe and persistent, it is scarcely necessary to have recourse to drugs, since the symptom subsides after a while as the system becomes adjusted to the altered conditions.

Wind and fog also induce headache in many in-

dividuals, but scarcely to the extent of requiring medication, even if such could be beneficially applied, and the same may be said of headache following prolonged cold bathing, since this usually subsides as the surface temperature is restored.

Sea-Sickness.—Nausea with depression, amounting in severe cases to collapse, and actual vomiting is only too well known as an accompaniment of sea voyages. The disturbance is commonly associated with the unaccustomed movement and may affect those who are susceptible in a train journey, while swinging, even in a rowing-boat on still water, or under the influence of any varied and unusual motion, such even as riding in a carriage; and the motion of a camel, which has a peculiar side-to-side gait, is especially obnoxious in this respect to novices.

The causation of the malady is not so obscure as complex. Many persons on commencing a descent, as in a lift, are conscious of a peculiar sensation of sinking in the epigastric region, which when frequently repeated, as in the pitching of a vessel, appears to induce nausea culminating in vomiting—besides this, the confused visual sensations due to the complex motion of a boat pitching and rolling, and the effect of these movements on the semi-circular canals, induce giddiness and vertigo through their repeated and alternating impressions on the equilibrium centres in the cerebellum and corpora quadrigemina, adding headache and collapse attended with faintness and chilliness, so that a condition ultimately results similar to that of concussion of the brain or nervous shock.

The patient becomes pale with clammy cold skin and suffers from deadly nausea, vomiting of reflex character with voiding of the contents of the stomach and duodenum and sometimes diarrhœa. Attacks of hemicrania often occur in those who are subject to it, and

complete nervous prostration with muscular relaxation ensues, sometimes with loss of consciousness, so that the similarity to the effects of a blow on the head is very close.

People are not all affected in this way, though certainly the majority suffer to some degree. A few fortunate individuals even of a highly developed nervous type do not know what sea-sickness means, others suffer only slightly or for a brief period and perhaps not on every voyage, the disturbance depending on the state of health or the degree of movement.

Custom has an educating effect and the symptoms diminish with use, but this is not always the case, and even some seamen suffer at the commencement of each voyage ; and in continuous rough weather, though actual vomiting does not afflict a hardened crew, there is a disturbance of appetite, temper, and equanimity which is attributable to the persistent turmoil.

In recent times the increase in size of ocean-going steamers has greatly improved their steadiness, and the frequency of sea-sickness has correspondingly diminished, so that we no longer hear, as formerly, of persistently sea-sick persons being put ashore on the voyage to the East, as the only means of preserving life.

The most constant scene of the malady now is probably the Channel crossing, where the boats are relatively small, the sea choppy, and the travellers inexperienced. It may be also that Continental people, who form a large proportion of the passengers, are more susceptible than ourselves, but whatever the cause there is certainly no lack of sea-sick folk on these short journeys.

Many people appreciate on going on board that all their senses are assailed at once. The rattle and din of machinery, the waving spars, apparently rising and falling horizon, and the close atmosphere of the saloon laden with odours of cooking and machine oil, to which

are soon added the sight and sound of those who are already overcome, added to previous apprehension and often an empty stomach, render them speedy victims, and once established the symptoms are certain to continue and increase during the continuance of the brief voyage.

In most instances the attack passes off in the course of two or three days even on a long voyage unless bad weather is encountered, and there are those who aver that it is worth while to go through the preliminary discomforts for the sake of the renewed health and vigour that usually succeed. On the other hand, those who land after an incomplete experience commonly suffer from gastro-intestinal derangement with headache, vertigo, and malaise for some days; so that any treatment that can be adopted is best directed to entire prevention, or such mitigation of the symptoms as circumstances permit.

The remedy which has been hitherto most popular is bromide of potassium, though the corresponding salts of ammonium or sodium might be even better, and a combination of the three best of all. The important conditions are that a full dose (ʒ j) should be taken sufficiently diluted in half a pint of mineral water about an hour or at least half an hour before commencing the voyage, so as to give time for absorption before this necessary function is disturbed. The patient should lie down, selecting a position as near the centre of the vessel as possible, keeping the head low and taking precautions against cold, especially if remaining on deck, as is generally advisable, and it is better to lie lengthways rather than across the vessel since the lateral motion is commonly the more extensive, and rolling from side to side is less upsetting than the alternate tipping up of the head and feet. Moderate pressure on the abdomen by a pad and firm bandage is a comfort to some. A full meal

should be taken two hours before starting, as the stomach is less impressionable in mid-digestion.

Many who feel uncomfortable during a short voyage are really suffering from fatigue and lack of food imposed by restlessness and the apprehension of being ill, and not from mal-de-mer at all.

In any case retching is more likely to occur and is more distressing with an empty stomach, and the attempt to make the deficiency good while on the voyage is a doubtful experiment.

A more modern and still more efficient preventive is chloretone. This camphor-like substance, trichlor-tertiary-butyl alcohol, is nearly insoluble in water and volatilises easily at comparatively low temperatures. It should therefore be kept in a stoppered bottle, or, if made up in powders, should be enclosed in paraffin paper, but is most conveniently taken in gelatine cachets; 5 grains is usually a sufficient dose, the sedative effects lasting five or six hours. Ample experience of its value has already been obtained not only in single doses for short voyages, but when repeated twice a day for longer voyages, and it may be considered quite reliable.

The ultimate remedy to fall back upon in obstinate and protracted cases is morphine, which has the advantage of being administered subcutaneously and so acts in spite of vomiting. A quarter of a grain is usually sufficient, and as it may need repetition the dose is best kept within small limits.

For the general regimen in those who suffer in spite, or in the absence, of remedies; recumbency, fresh air, and abstention from food must be adhered to; cold drinks such as lemon juice with effervescing mineral water, whisky or brandy with aerated water, and later diluted milk or perhaps bottled stout or ale with a few biscuits, can be taken; but for the most part it is as well to take nothing but water to wash out the stomach and ease the

vomiting until recovery ensues spontaneously, as it usually does in twenty-four to forty-eight hours.

If the voyage lasts a week or longer, the restored health and appetite speedily make amends for the wastage of the first days.

Curiously enough, invalids and convalescents, who form a considerable proportion of those crossing the Channel on the way to health resorts, suffer less in this respect than many in robust health, so the dread of sea-sickness, especially with the aid of chloretone, need be no deterrent in such cases.

It might be added that in this as in most other physiological disturbances the young commonly get over their discomfort more quickly than those in a later period of life, in whom the general disturbance is more profound, and there have been instances in which the headache, vertigo, and nausea have persisted for days or weeks after landing and have been the forerunners of serious lesions of the cerebral vessels resulting in apoplexy and hemiplegia, in those suffering from degeneration of the cerebral arteries.

CHAPTER V

THE CIRCULATORY SYSTEM

It is a pretty constant experience in practice that patients complain of weakness and of being readily fatigued, without mentioning anything more definite, or alluding to any local distress. Examination often fails to discover any organic lesion adequate to explain the loss of vigour. There are, however, certain obscure complaints to which such symptoms may be assignable and which should be considered before concluding that the condition is functional.

Chief among these are diseases of the heart and kidneys. Long before dropsy develops, or any other sign which attracts attention to either of these organs, a consciousness of failing power and of inability to perform ordinary avocations, or of greater effort in doing so, impresses itself on the patient's mind.

Every now and then careful examination of the urine will reveal the presence of albumen, pus, or tube-casts, or perhaps only a constant deficit in the output of solids, so that there is persistent low specific gravity.

In connection with the heart, apart from definite valvular mischief, which however may first be recognised, especially in elderly people, in consequence of complaint of languor leading to examination, there may be found weakness of the heart's action from defective contractility associated with myocardial disease or degeneration, which is a very obscure matter, sometimes dependent on alcoholism or syphilis which may not be avowed.

Such myocardial disease may not give rise to any

obtrusive murmur, but the weakness of the heart sounds and impulse with some displacement of the apex beat may be all that can be discovered. Sometimes there is a mitral systolic murmur from dilatation associated with a flipping first sound, and occasional irregularity of a weak pulse. Further evidence may be found in congestion and œdema of the bases of the lungs, and closer questioning may elicit a confession of sensations of faintness, palpitation and muscular cramps, or of vertigo on rising and loss of breath on slight exertion. These indications in a patient past middle life may be the precursors of acute cardiac failure or of a cerebral attack from embolism, thrombosis, or hæmorrhage.

It may be assumed that aneurysm of the arch of the aorta in any part would reveal itself comparatively early, but there is one region—namely, the descending thoracic aorta—in which such disease has been hitherto almost invariably overlooked. Rarely reaching the surface, and not interfering greatly with any important organ, such aneurysms often attain the size of a cocoa-nut or larger without attracting attention; the only indications being pain referred to the left side of the thorax, varying in intensity and often more noticeable at night; this feeling of fatigue and want of energy being associated with low arterial tension.

There must be in every one's experience instances in which a sudden profuse and fatal hæmoptysis has been the first, last, and only recognised indication of this disease, and whatever may be the opinion as regards the curability of this disorder and the wisdom of allowing the patient for his own peace of mind to remain in ignorance of it as long as possible; no medical man would feel easy should such an accident occur to one of his patients whom he had recently passed as sound, or would forgo the manifest advantages of correct prognosis as affecting his patient's affairs and his own credit.

When any suspicion of the kind arises, practical certainty can be attained by the use of the X-rays either by a radiogram or the use of the screen.

Other obscure causes of general weakness are diabetes and Addison's disease, the manifestations of which are familiar enough, but it is important to bear them in mind in this connection, since patients more often complain of weakness and fatigue than of the more characteristic features of these disorders, and these may only appear at a later stage and require special investigation.

In all cases then in which weakness, languor, and fatigue are complained of, these obscure diseases, for the most part productive of low blood-pressure, should be borne in mind, particularly when they are persistent and perhaps associated with actual loss of weight.

Having excluded these obscure and somewhat rare organic diseases, there still remains a very large residue of cases in which weakness and fatigue are persistently complained of, and which are usually regarded either as cases of "anæmia and debility" or else as neuroses. The subjects of **anæmia and debility** exhibit departures from the normal standard of health rather on the negative side, such as defective nervous and muscular power, loss of appetite, unsatisfactory digestion, and constipation associated with some pallor and possibly lessened force of the heart's action; resembling in many respects the features of convalescence from acute disease but without any such history.

Instances of this kind occur at all periods of life from childhood to old age, and appear to be associated mainly with indoor and town life and a deficiency of sunlight, fresh air, and healthy exercise. The best remedy, as in the case of convalescents, is a change to the country or seaside, preferably where the air is bracing—that is, cool and dry.

Drugs are of secondary importance, but where circum-

stances do not permit of change of air, a bitter stomachic with ammonia or mineral acid, the combination of iron, arsenic and strychnine, or such a preparation as Easton's syrup, is usually prescribed, with such emendations in the matter of food, rest, recreation, etc., as the circumstances permit, for it must be admitted that " res angusta domi " have often much to do with this condition.

The cases of **neurosis**, in which fatigue and weakness are the main complaint, are generally recognisable both by their persistence and their peculiar psychical features. They are characterised by introspection and the tendency to pay as much or more attention to subjective sensations as to objective impressions. They can always be relied on to undertake the handling of their own case with conspicuous lack of success, but their assumed better knowledge, objections to the remedies advised and forecasts of failure, are serious stumbling-blocks to the practitioner, unless he is one of those who can subordinate rational therapeutics to the arts of the psychological conjurer. For the most part the bromides and valerian have chiefly proved of service, outside the special cures advocated in such cases, but the subject has been fully dealt with in Goodhart's *Common Neuroses*.

Perhaps there is no expression so frequently employed in regard to a somewhat vague condition of ill-health as that of being **"run down."** The phrase appears to cover a condition of asthenia which is unassociated with definite physical signs of disease in any particular organ or system. The term has no doubt taken its origin from analogy with the feeble action of clockwork at the end of its spring, and connotes a general reduction of activity of most of the bodily functions, though the most prominent features may be associated with the nervous system. The daily life of most people involves the performance of duties which are not associated with immediate pleasure or profit, and even where these are involved there may

be an output of energy which is not always adequately balanced by corresponding rest and nutrition. This results in the exhaustion of a latent store of energy and energy-supplying material, together with an accumulation of effete matters which tend to silt up the machine. The functions of nutrition and elimination fail at times as the result of over-action or want of sufficient stimulus in motive or occupation. Such may be the result of continuous monotonous drudgery, or special application which has interfered with the reasonable distribution of the energies in other directions. It is commonly met with in those who have been in attendance on sick relatives, where constant watching is associated with keen anxiety and the exercise of continuous self-control, or may result from the undue expenditure of nervous energy associated with too active social life, much excitement, and insufficient rest. The condition of being "run down" shows itself in failing energy, loss of appetite, and deficient action of the various secretory organs. The complexion becomes pale and clouded, there is a want of animation, and often actual mental depression, the organism ceasing to re-act satisfactorily to accustomed stimuli. Desire fails, and often the sufferer is so enthralled in worries and anxieties that it appears impossible for him to free his mind of them, depute his affairs or suspend his attention even for a time.

The chief remedy for this state of things is entire change of occupation and surroundings. For a few days at least the individual must shake off the routine which has consumed his energies in one particular channel. Not merely rest is required, but rest in association with such enjoyment as may be within reach, and in most instances in an atmosphere different from that in which the patient usually lives. Relaxation for a time from the strain of watching, from the monotony of simple duties, from the contemplation of matters incapable of

satisfactory solution, and from uphill work in general, are essential for the mind to recover its elasticity, so as to regard affairs in a proper light, to restore the sense of proportion, and to re-awaken the energies which are in abeyance. Atmospheric conditions may have some share in the development of this state, and it more commonly occurs in the spring or late winter, when warm weather succeeds to cold, after a prolonged imprisonment within doors, and perhaps a greater lack of variety of life than is possible under more favourable climatic conditions. The alteration of health is not limited to mental disturbance, but shows itself in lowered arterial tension, dilated pupils, loss of muscular tone, and deficient force of the heart beat, with some loss of fat and often a tendency to lymph stasis and loss of elasticity in the skin, manifested by flabbiness of the tissues, especially noticeable in the face. It is generally believed that in addition to what has already been mentioned there is a further constitutional weakness leading to a greater tendency either to contract contagious disorders or to develop others to which the patient may be subject or exposed.

The absence of efficiency in work and loss of power of enjoyment, with disturbance of the usual mental characteristics, together with the tendency to develop or acquire definite maladies, render it important to restore the proper state of health without delay. As has already been suggested, the most effective remedy is a complete change of locality and occupation. Some new interest should be encouraged for a time, and if the patient can healthily indulge in a favourite hobby, so much the better. In the absence of this, residence with friends or in an hotel or hydropathic establishment would be useful, unless the patient is really unable to free himself from the daily routine; in which case some definite change must be effected in favour of relaxation, exercise in the open air, change of diet, and early hours. In regard

to drugs the most useful are mineral acids and combinations of strychnine, quinine, or other preparations of cinchona. Some stimulant may be needed, and at first mild mercurial purgatives followed by salines.

Extreme cases of this kind, particularly in women, are constantly treated by a modification of the Weir Mitchell system which has been termed the "rest cure." The principle is the "conservation of energy" by keeping the patient in bed while feeding generously. A most important feature, however, is removal from the ordinary environment and the substitution of such quiet interests and companionship as may keep the patient's mind away from habitual worries.

Those only who are confidants in the daily life of men and women know the harassing strain constantly put, more especially on the latter, in endeavouring to maintain uniformity of behaviour and demeanour under difficult circumstances—trying to keep one's temper and some one else's as well, suppressing natural inclinations out of consideration for others' interests, and pulling generally against the stream. These things produce a civil war of emotions which leads to nervous exhaustion and can only be remedied by seclusion of the patient and exclusion of relatives and friends for a time, under judicious professional advice.

A small proportion of cases only call for such a relatively severe measure, and only a minority could afford the usual expense in a special establishment.

Variation in the Tension and Distribution of Blood in the general circulation is liable to produce minor discomforts when the general tone of the system is relaxed. Such sensations as "pins and needles" in the extremities, or numbness from relatively slight pressure, are prone to occur with very much greater frequency at such times than at others. This would appear to be due to loss of tone in the muscles associated with deficient arterial

tension. Under healthy conditions the general sustained muscular contraction tends to hold open not only the local vessels but to protect from pressure the main trunks lying between and beneath the muscles. When this is relaxed, these, like pads of wet clay, offer no support, but tend rather, under the weight of the body, to obliterate the lumen of these trunks. This results in diminution of the circulation not only in the distal part of the limb, but especially in the nerve trunks themselves. The aching tenderness which follows change of position is an indication of the restoration of circulation to the anæmic parts. It may be noted that the effects of alcohol have a strong tendency in this same direction, and the worst cases of so-called "pressure paralysis" result from the deep sleep and relaxed arterial and muscular tension associated with excess of alcohol, and have been sometimes spoken of as "Saturday night paralysis." The recurrence of these minor discomforts in the general circulation indicates the desirability of taking such cardiac and general tonics as strychnine or quinine.

Syncope.—Sudden loss of consciousness, associated with failure of the circulation, not involving serious organic disease, is frequently met with in young adults of both sexes. The most common exciting cause is emotional excitement, often associated with extremes of heat or cold, or impure atmosphere. It may also result from sudden attacks of acute pain, or from the lack of food. On this account it is particularly liable to occur in the early morning when any demand is made on the energies before breakfast, more particularly within doors. The preliminary sensations are usually tingling in the extremities, a feeling of giddiness and coldness, a slight clammy perspiration, and a gradual failing of the senses marked by apparent remoteness of sights and sounds, until consciousness is entirely lost. Complete relaxation of the muscles occurs, so that the patient subsides in a

heap, contrasting with epilepsy, in which the muscles are rigid and the patient falls more violently. The appearance of a person about to faint is characteristic. He becomes rapidly pale, has a vacant expression, the lids fall over the eyes, and the hands become flaccid and the grasp uncertain. In syncope of this description the attack is rarely so absolutely sudden but that the patient can lean on or seize some neighbouring object, and actual injury rarely occurs, unless there is proximity to some dangerous object, such as a fire, or declivity. In many cases, on feeling these indications, the patient attempts to reach the open air, and the effort of doing so, and assuming a vertical attitude, precipitates the attack. Actual fainting may often be averted by taking a contrary course, sitting with the body forward and lowering the head as far as possible between the knees. This not only facilitates the circulation in the brain, but by compressing the abdomen expels a good deal of blood which is accumulating there. After a few minutes in this position the patient may be sufficiently recovered to attempt to get up and walk into the open air. When called upon to deal with a patient who has actually fainted, the first necessity is to get him into a horizontal position, to release any clothing which may be impeding free respiration and circulation, and to obtain as much air as is possible, at the same time applying any stimulant that may be at hand. The application of ammonia vapour to the nose is a common remedy, and even more effective is the application of cold water, especially to the face and behind the ears, and the administration of a strong stimulant by the mouth. As a fainting person is unable to swallow it is best to apply a crude spirit such as brandy or eau de Cologne to the inside of the lips and gums. By these means recovery may be so far advanced that the patient can be slightly raised while he sips some stimulating fluid.

The mere act of sipping is in itself a stimulant even in the case of cold water, but a more rapid stimulating effect is derived from hot spirit and water in a very small quantity, —about a wineglassful.

Syncope almost always occurs while the patient is inactive, and practically never during exertion. Even on recovery movement is sufficient to stimulate the circulation, so that there is little fear of recurrence if the patient is able to walk. This tendency to fainting is almost limited to adolescence, and is to be avoided by discouraging occupations of an inactive character before taking some nourishment.

Palpitation.—Apart from any serious organic disorder of the heart, occasional irregularity of the beat is met with at intervals in many healthy individuals. These disturbances are characterised by hurried and tumultuous action, sometimes by what appears to be an occasional tumble in the cardiac region, producing a sudden start either when waking or sleeping. This disturbance nearly always depends on some reflex impulse conveyed by the pneumogastric nerves. The most frequent instances occur in minor forms of indigestion, which have been already alluded to. It most often ensues in connection with gastric distension, usually by gas, and is occasional and of only temporary duration. The treatment of this necessarily involves the correction of the stomach disturbance, and is mostly met by antacids, such as the compound of equal parts of bicarbonate of soda, phosphate of soda, magnesia, and white sugar, of which a teaspoonful may be taken frequently. Another cause of common occurrence is the over-use of tobacco, especially in those not thoroughly accustomed to it. This induces increase of vascular tension, and may lead through this to insomnia and to tumultuous and forcible cardiac action, which is particularly distressing when lying down at night, and is more noticeable when the patient lies on the left side.

Such an effect after the use of tobacco, whether in large or small quantity, is an important intimation that it should be discontinued for a time and certainly employed in reduced amounts. A persistence in tobacco smoking, in spite of this warning, leads to further disturbance and dilatation of the heart with very much more serious symptoms, which may even prove fatal. During the recent epidemic of influenza there have been very numerous cases in which a cardiac neurosis has taken the form of these attacks of palpitation, accompanied by either faintness, nausea, or giddiness. These do not commonly extend over longer periods than two or three weeks, but in some instances have settled down to persistent tachycardia of indefinite duration. Under the influence of emotional excitement palpitation of the heart is familiar to nearly every one, but when brought about by trifling psychical disturbance it should be regarded as an indication for adopting a period of rest or a more even mode of existence. For various nervous disturbances of the heart cactein in the form of pillets, containing $\frac{1}{100}$ of a grain of cacteina, have been much used. They may be taken three or four times a day and increased from one to four at a time. The effect of overstrain of the heart not uncommonly results in turbulent action attended with dyspnœa, and is more liable to occur where any unwonted exertion is made without proper precaution, or by adults who are not accustomed to it. In connection with mountaineering it is a familiar experience with some to be arrested by lack of breath, on commencing to climb. For such the guide usually waits a few minutes, as it is only the result of some failure of the right heart which may presently recover, and the climber with care is able to continue walking for several hours. On the other hand, where a general tremulousness with weakness of the limbs shows itself, the guide refuses to proceed, these indications pointing to failure of the left heart, which is

more likely to be increased by further exertion, and later on lead to entire collapse of the climber. Many people may accomplish by slow degrees what cannot be effected in a hurry, and the expression, "It is the pace that kills," should be borne in mind where signs of cardiac overstrain show themselves. It would be wise if persons past middle age, at all events, could devote some time to training the heart by moderate and varying exercise before embarking on any violent or sustained exertion.

Epistaxis.—Nose-bleeding is a very common occurrence at all ages, but particularly in children. Apart from any injury it occurs as a result of excitement and often comes on quite spontaneously. The bleeding is usually restricted to one nostril and can be traced to a point about ¾ of an inch within it, at the junction of the floor and septum. This corresponds to the position of the naso-palatine artery, an anastomotic vessel joining the internal maxillary and palatine arteries, and it is from this or one of its branches that the blood usually comes. The practice of advising a patient to lie on the back merely obscures the hæmorrhage by permitting it to take place into the pharynx, though this position, by acting as a sedative to the heart, may have some influence in arresting it. Physiologically the means of stopping such hæmorrhage is by raising the arms above the head. This causes contraction of the vessels of the head and neck, and may even induce a feeling of faintness. Another method is the application of cold either behind the ears or to the nape of the neck. This is commonly effected by a piece of metal such as a door key, and is also effective in bringing about reflex contraction of the artery.

Of local measures the most immediately effectual is undoubtedly the application of a solution of adrenalin, 1 in a 1000 or weaker, on a pellet of wool to the affected nostril. It must be inserted sufficiently far to reach the bleeding point, and for this purpose it is best

wrapped on a probe. Tincture of hamamelis, or Pond's extract, answers the same purpose, but these measures failing the nostril must be stopped efficiently. The old practice of plugging the nostril back and front with rolls of lint should only be resorted to in the last instance. The cleanest and simplest apparatus is an indiarubber bladder shaped like an hour-glass, which can be inflated with air after insertion, but a very good plug may be rapidly made by shaping a piece of raw bacon fat to the size of the nostril. Either of these is easily adjusted, delays the flow of blood sufficiently to permit of its clotting, and can then be easily removed. The danger of the more complete older methods was the occurrence of sepsis which arises very early in connection with blood clot in a cavity abounding with micro-organisms. After removal of any of these plugs the nostril should be washed out with an antiseptic solution such as has been already mentioned in dealing with Catarrh. Where epistaxis occurs repeatedly, constitutional remedies should be employed to deal with the cause of the complaint. In the simpler cases mild purgation may be sufficient, but in those where there is a general tendency to hæmorrhage, as in some instances of chlorosis or anæmia allied to scurvy, it is better to administer lime salts, as chloride of calcium, in doses up to a drachm daily. Where there are no other indications of hæmorrhagic tendency, and bleeding recurs from the nose, a careful examination should be made to ascertain if there is any local disease, such as ulcer or angeioma.

Varicose Veins and Phlebitis.—Varicose veins are immediately apparent, inasmuch as the vessels affected are superficial. They usually occur in the lower extremities, more particularly on the left side, and are met with at almost any period of life, although most frequently appearing between the ages of twenty and thirty. Heredity seems to play an important part in the occurrence

of the condition, though anything which interferes with the circulation, such as pregnancy, may also lead to their development. Occupations involving long-continued standing, habitual constipation, and the use of tight bands round the leg are very commonly accessory causes. The vessels become thickened, distended, and tortuous, the valves are rendered inoperative, and the weight of the entire column of blood is thrown on the lowermost veins. The circulation in the lower parts of the leg is often impaired, especially that in the skin. The limb feels heavy and painful, and after exertion or standing there may be a little œdema of the ankle. The circulation in the skin being reduced, pigmentation and eczema may result, and any scratch or abrasion, instead of healing, tends to spread and form an ulcer—this ulceration may extend through the vein wall, producing a most dangerous hæmorrhage. Injury to the vein may lead to thrombosis and spontaneous cure. Persons with varicose veins are especially liable to phlebitis ; if limited, this is not of serious moment, but sometimes the thrombosis spreads into the larger veins while fragments of clot may be detached as emboli.

On account of these dangers, as well as the discomfort attending varicosity in the veins, treatment should never be neglected.

The treatment of this troublesome complaint consists in removing all sources of obstruction in the form of tight bandages or garters, restricting the amount of standing and keeping the bowels well opened, together with the use of elastic bandages or stockings. Slight degrees of varicosity can in this way be dealt with, and only in the worst cases, in which hæmorrhage occurs and inflammation is frequent, need surgical methods be resorted to. Nothing is gained by resting too much, movement rather helping the circulation than otherwise, especially when support is maintained. As a

primary affection, inflammation of the veins or phlebitis is usually rheumatic or gouty, but where coagulation of the blood has already taken place secondary inflammation of a varicose vein frequently follows. In either case this is associated with pain and tenderness, with some local redness and swelling, and is a sufficient indication that the patient should lie up and rest the limb. The best local application in such a case is a mixture of equal parts of the ointments of belladonna and mercury. The limb should then be slightly raised and maintained absolutely quiet either on a pillow or in a sling. A period of six weeks is usually arbitrarily allotted to the cure of this affection, but half that time is often sufficient to allow the active changes to subside, and when there is no œdema, pain, or redness the patient may begin to get about provided sufficient pressure is maintained on the damaged vessel to hinder the dislodgment of any loose clot. There is not sufficient evidence of iodide of potassium exercising any influence in causing disappearance of the coagulum for it to be systematically recommended, though in gouty cases in combination with salicylate of soda it may help to control the recurring phlebitis. In rheumatic cases salicylate of soda may be given internally, though it is better applied locally, as Gaultherium Oil 2 drachms to the ounce of Lanoline, to which 15 grains of Menthol may be added to relieve pain. Where signs of suppuration occur hot fomentations should be resorted to, and speedy evacuation of matter encouraged.

Varicocele.—This, in some degree, is a very common ailment though not always recognised by the patient and not always mentioned when discovered. The left side seems most often affected on account of the rectangular junction of the spermatic with the renal vein not serving as a valve, as is the case with the more oblique opening into the cava on the right.

Patients with varicocele chiefly complain of aching and dragging pain referred to the loin and abdomen, which may extend to the leg, causing a sense of weariness in standing and walking, attended sometimes by faintness and nausea. An impulse may be appreciated on coughing owing to the continuity of the vessel within and outside the abdomen. The distension and tortuosity in the upper part of the scrotum can only be appreciated when the body is erect, and this sometimes leads to its being overlooked on examination when not directly mentioned.

A man of thirty once consulted me on account of frequent "stomach ache," which occurred particularly when standing or sitting and not while lying down. Nothing amiss could be discovered in the abdomen while recumbent and no complaint was made of the scrotum. It was only by catching sight of the distending veins as he got up that double varicocele was recognised.

Minor degrees of the condition may be temporary depending upon slight failure in the general health, cough, straining at stool, or a warm moist atmosphere, and may be remedied by cold bathing, tonics, and support; but the severer and persistent degrees require careful surgical treatment—ligature of the distended vein, without injury to the cord, nerves, or artery.

CHAPTER VI

THE MUSCULAR SYSTEM

THE muscles themselves are for the most part free from morbid changes. The influence of their contraction on the vascular system is not always sufficiently appreciated, though this is considerably modified by physical activity. The blood may be considered to be divided principally between the skin, muscles, and viscera. Consequently a reduction of blood in the skin as a result of cold, and in the muscles as a result of cold or of inactivity, permits of an undue quantity of this fluid being distributed to the internal organs. Physiologically this may be of value in such circumstances as digestive or special brain activity in which there is a tendency to chilliness or actual coldness of the extremities while the main current of blood is so diverted.

In the treatment of chronic valvular disease of the heart by the Nauheim system of baths and exercise, the distribution of blood in the skin and muscles by surface stimulation and rhythmical movements is taken advantage of to relieve the tension of the circulation and the work of the heart by widening the channels of peripheral distribution. On these lines the value of moderate exercise to the point of causing extra vascularity and functional activity of the skin and muscles may easily be appreciated in the relief they afford to the heart and the extra freedom in the circulation of the blood through the lungs and body generally.

It is a peculiarity of the arrangement of the vessels

within and between the muscles that functional activity tends to cause dilatation rather than compression of them, and as most of the cutaneous vessels are derived from muscular branches, the vascularity of the two systems is affected synchronously.

A very suggestive feature in connection with the muscles is the presence in them of hæmoglobin, to which their colour is largely due, and which varies considerably in different states of the organism. For instance, in cases where death has been associated with cyanosis the muscles are very dark, while in those associated with deficiency of hæmoglobin in the blood they are very pale; indicating that the hæmoglobin of muscle shares the changes of the blood. Individuals with large muscles are usually plethoric and those with small muscles commonly pale and exsanguine. That hæmoglobin may possibly be stored in the muscles and transferred to the blood is suggested by the case of a man recently under treatment by enemata of water only on account of gastric ulcer with hæmorrhage, in whom distinct improvement in colour and the character of the blood occurred during a fortnight's entire abstinence from food.

The function of hæmoglobin, whether in the blood or muscles, is chiefly, if not entirely, as a holder of available oxygen, and the marked effect of muscular exertion in producing dyspnœa either in health or disease is striking evidence of the activity of oxidising processes in connection with muscle activity. It is also a well-known fact that in those who show a tendency to gout, acute attacks are specially liable to occur during periods of physical inaction—that is, while the metabolic changes in the muscles are suspended.

The beneficial effect, therefore, of regular physical exercise must be attributed to the intrinsic influence of muscular metabolism on nutrient matters in the blood

leading to their complete oxidation as well as to the assistance their alternate contraction and relaxation afford to the circulation in the arteries, veins, and lymphatics, and the stimulating effects on the functions of the heart, lungs, and, indirectly, the excretory organs. On account of the abundant demand for oxygen entailed, such exercise should be taken preferably in the open, and in the purest available air with careful avoidance of tight clothing or anything impeding respiration, and should be accompanied by a plentiful supply of fluid to encourage the solution and excretion of effete products —these requirements being in accord with the familiar indications of nature.

Sprains.—Although the muscular tissue itself is but slightly prone to disease, the sheaths, the tendons, and the aponeuroses are very susceptible to slight injury, and the influence of such diathetic states as rheumatism and gout. In consequence of undue efforts, associated rather with mal-position and falls than with simple muscular contraction, the tendons are liable to give way or to suffer partial disturbance of their attachments, giving rise to injuries known as " sprains."

The term " sprain," commonly applied to local injury resulting from over-flexion or extension of a joint, necessarily involves stretching and injury to other tissues than the tendons, notably the ligaments and joints, as well as the parts covering them. Sudden and continued pain as well as swelling and tenderness are the usual accompaniments, and it is somewhat remarkable that though such fibrous structures as these are ordinarily insensitive, they develop acute sensitiveness with extra tension and inflammation. No small share in the subsequent effects of sprains is taken by the synovial membranes and tendon sheaths. Effusion occurs into both, so that some degree of synovitis and teno-synovitis is added. Sprains, then, are complex lesions, short of

actual fracture of the bones, or rupture of ligamentous structures, involving deep-seated hæmorrhage from laceration of soft tissues and reactionary inflammation, though the actual limit of damage cannot always be estimated, and many severe sprains are found after some time to involve actual detachment of portions of bone, or rupture of tendinous structures. The uncertainty as to the extent of such a lesion suggests the inadvisability of putting any strain on the affected part until recovery is secure. In those slight cases in which the immediate pain subsides in a few minutes, and is followed by no obvious swelling, such precautions are unnecessary, but a few moments' rest will generally decide whether any serious damage has been done by the development or otherwise of swelling. Should this occur the joint must be fixed in a position of comfortable rest, and cold applied by means of wet cloths or an evaporating lotion. The old-fashioned remedy, tincture of arnica, is still often used, and its effect in cooling the part by evaporation of the alcohol may itself be useful.

Slight sprains may be remedied by firmly embracing the joint in every part with strapping, preferably of thin leather or kid, which sets a limit to movements and affords support without entirely disabling the limb.

Of all the joints probably the ankle is the one most commonly the seat of this injury, owing to its receiving the entire weight of the body, and the involuntary attempt to rectify mal-position by sudden tension of the controlling muscles. A very common feature of these injuries is the rupture of the tendon of the peroneus tertius, which results from sudden forcible inversion of the foot. The occurrence of this lesion can generally be traced by a line of tenderness extending to the base of the fifth metatarsal bone, also by ecchymosis here, and the noticeable absence of the tendon when the foot is raised. In most instances the breakage is made good by organisa-

tion of effusion in the sheath which occurs in a few weeks.

Synovitis.—The effusion of an extraordinary amount of fluid in a joint, usually as a result of over-use or a blow, accompanied by some degree of pain, is a matter of common occurrence and one which is too often neglected. When effusion occurs within an hour of such injury, it is most often due to blood, the increase of synovial fluid taking a longer time. As the degree of pain in either case may not be intense nor protracted, patients are very apt to neglect the mere stiffness and swelling produced by the effusion, and by continued use to render such either chronic or recurrent. Simple synovitis is usually distinguished from that due to rheumatism or gout by the relative absence of pain, and by a single joint only being affected. The important element of treatment is rest, the limb being placed in the position of greatest comfort, usually half flexed, and well supported. In case of restlessness, it may be necessary to place it upon a splint, extending sufficiently far above and below to fix the articulation and muscles. Not only should movement be prevented, but the patient should be discouraged from exerting any pressure on the joint, as in walking with a stiff leg. Local applications, first cooling, such as an ice-bag or evaporating lotion, are best, and subsequently some form of counter-irritation, such as preparations of iodine or a dilute ointment of the red iodide of mercury, 5 or 10 grains to the ounce. In the case of smaller joints, especially of the hand, the application of counter-irritation alone may be sufficient.

Teno-Synovitis.—Effusion into the sheath of a tendon most commonly results from over-use, particularly in the forcible or continued use of some particular movement. It is met with most frequently in the wrist and hand, more particularly the thumb, and it is characterised by tenderness and swelling in the course of certain tendons,

the movements of which become stiff and painful. The rest obtained by a bandage exerting moderate pressure is usually sufficient to allay this, provided the particular movement is desisted from.

Obscure pains and areas of tenderness in connection with the muscular system are often traceable to **bursitis.** Many of the superficial bursæ are sufficiently well known, and effusion into them produces such noticeable swelling that they are not easily overlooked, but the deeper ones are more difficult to define, and it is rather by the situation and occurrence of the pain, in association with particular muscular movements, that the complaint is apparent. Common situations for trouble in these spaces are the outer side of the hip, beneath the tensor vaginæ femoris, over the ischial tuberosity, under the insertion of the glutei muscles both behind and outside the trochanter, above the insertion of the ilio-psoas muscle, about the knee, and, perhaps most obscure of all, the large bursal space lying between the gastrocnemius and soleus in the calf of the leg. These bursæ are liable to inflammation and effusion, in consequence of over-use and fatigue, and are sometimes affected by local pressure, or by gouty or rheumatic inflammation.

The inflammation of the sural bursa has indeed often been mistaken for phlebitis. Traumatic bursitis may be relieved by counter-irritants and rest, and that of over-use and fatigue usually subsides with prolonged inactivity of the muscles, but is one of the causes of pain and aching which follow protracted exertion. Bursitis arising in connection with gout or rheumatism must be treated as part of this complaint, and in the case of sural bursitis the most rapid cure is effected by the local application of salicylate of methyl in fomentations or ointment.

Some of the commonest instances of bursitis, synovitis, and teno-synovitis are afforded by such local lesions

resulting from special use of particular joints, as golfer's shoulder, tennis and fisherman's elbow.

Bruises.—The extravasation of blood beneath and into the skin as the result of contusion is usually regarded as irremediable, and for the most part having passed through successive colour transformations it disappears, and causes no inconvenience beyond transitory tenderness. In some situations, however, it may be of importance to avoid discoloration, which lasts for a week or more. This can only be done by preventing exudation of blood at the time of injury, by cold or pressure. The avoidance of a " black eye " after a contusion by the firm application of a piece of raw beef-steak is time-honoured, and fairly effectual. A pad of cotton-wool, soaked in cold water, is cleaner and as efficient, but to be effective the application must be made immediately, and continued for a couple of hours at least. There are no means of hastening the removal of bruises which are once established and are passing through their colour gradations.

Myalgia.—Pain associated with movement in the region of the muscular attachments, and excited by contraction, does not necessarily involve actual change in the muscle-fibre itself, and for the most part such pain comes and goes without any recognisable change in the size of the muscle, and without leaving any sequel such as fixation or loss of bulk. Tenderness on pressure there may be at times, but even this is rare and but slightly developed, the main feature being pain more or less sharp attending movements in which the particular muscle or group of muscles is involved, persisting but a second or two after the contraction has ceased, the intervals being quite free of discomfort or attended with but subdued aching. It may fairly be assumed, then, that the change consists in an alteration of vascularity with some excess of exudation, interfering with the free movement of adjacent

structures, but restricted almost entirely to the fibrous parts, such as the attachments, sheaths, aponeuroses, and septa. In a considerable number of cases, termed myalgia or muscular rheumatism, the onset of the attack can be traced to cold, or cold associated with wet, to which the particular part has been exposed. Such attacks are more often unilateral, affecting particularly the side of the neck, constituting what is known as a " stiff neck," or the muscles about the shoulder or hip. These attacks may be protracted over three or four days, causing limitation of movement, and appearing worse after prolonged rest, as on first waking in the morning. Other attacks, similar in many respects, affect the muscles of the trunk, more particularly in the upper, middle, and lower parts of the back, and for the most part come on spontaneously and are commonly discovered on making some extraordinary movement. These spontaneous attacks, which are indeed constitutional in origin, occur both in hot and cold weather, often in the absence of exercise, and depend upon toxæmia, usually associated with defective functional activity in the digestive tract, consequently they should not be treated nor regarded merely as local affections. They are best remedied by mercury or calomel in 2 or 3-grain doses, followed by salines. The salicylates and especially aceto-salicylic acid may be subsequently administered internally, or the salicylate of methyl, 2 drachms to the ounce of wool fat, applied locally, as the pain does not always entirely subside, though the acuteness is remarkably reduced by the mercurial treatment. Though these local pains are spoken of as muscular rheumatism, they are unattended by any rise in temperature as in the articular disorder, and are not at any time associated with other recognisable manifestations of rheumatism. The fact that the salicylates are helpful in remedying the complaint is no evidence of its being rheumatic, since these drugs are known to act

efficiently in promoting the flow of bile and so prolong the effect of the mercury. Of all local measures none are so efficient as the application of heat and massage. A turpentine stupe applied for twenty minutes is often both comforting and curative. More generally distributed pains, associated with slight rise of temperature, are liable to recur from time to time in both adolescents and people of middle age. This general fibrositis in the young, often referred to as " growing pains," is not infrequently a rheumatic manifestation and deserves more serious attention than it commonly receives on account of the possible involvement of the heart, a matter of special importance at this age. In older people recurrent attacks of general pain in the muscles are usually referred to influenza, but the fever is slighter, general nervous prostration less, and the rapidity of recovery greater than in that complaint. Discrimination between the two is more important since influenza requires rest, and subsequent supporting regimen, while this general form of fibrositis rather calls for exercise and reduced diet, with diminution of stimulants. The pains in influenza are distributed mainly in the back, less in the extremities, are particularly intense, and associated generally with a temperature above 103°. The pains in what is probably toxic fibrositis are more widely distributed, persist for two or three days, and are unassociated with fever beyond a degree or two.

What has often been termed a " crick in the neck " is occasioned by some forcible and unguarded movement, or more often by sleeping in an attitude which allows of persistent over-extension of some of the articulations. It often follows the use of too high a pillow when lying on the side. The pain is due to over-extension of ligaments and articular surfaces, and is initially traumatic, but diathetic states are prone to express themselves in such slightly damaged localities and to render the pain

more lasting than it would otherwise be. It is hardly necessary to refer to the treatment of so slight a trouble except to point out its causation so that it may be avoided, and recourse should be had to remedies already mentioned when constitutional disturbance is responsible for persistence of the pain.

Cramp.—This consists in painful sustained involuntary contraction of muscles or groups of muscles, usually associated with fatigue or toxæmia. In the latter case it may be associated with convalescence from cholera, influenza, or other acute fevers, and may take the form of tetany of the upper limbs.

Attacks of cramp for the most part affect muscles whose attachments are approximated either actively or passively, and pass off with extension of the affected muscles and massage. When recurrences are frequent, warm bathing, antacids, and free imbibition of water assist in banishing them. The extremities are most commonly affected, but portions of the rectus abdominis, the platysma, extrinsic muscles of the tongue, or other groups may be affected, producing peculiar discomfort.

CHAPTER VII

SPECIAL SUBJECTS

THE EYE

Foreign bodies in the conjunctival sac constitute a very common source of discomfort, and are more formidable when, as frequently happens, gritty particles become embedded in the surface of the cornea. Their detection requires the use of a lens, a good light, and the employment of a local anæsthetic, of which the best for general use is a solution of 10 grains of cocaine in an ounce of castor oil. By these means a minute examination may be made, and the half-buried particle, when discovered, should be removed carefully with a small spud, the eye being subsequently closed and covered with a wet pad. Such injuries most often result from cinders in the course of a railway journey, which leave small ulcers, taking twenty-four to forty-eight hours to heal. Over this period the occasional use of cocaine in oil is of great service.

A foreign body in the conjunctival sac is easily exposed when in the lower part by pulling down the lid while the eye is directed upwards. In the upper portion a thorough examination is not so easy, as even if the lid be completely everted the upper portion of the sac still remains unexposed. By gently tilting the everted lid while the globe is rotated downwards a foreign body there situated is usually brought into view. A small wet pledget of wool or camel-hair brush offers the best means of sweeping the object off the conjunctiva. In many instances by merely pulling the upper lid downwards over the lower

so that its inner surface may be swept by the lower lashes, a foreign body in this situation is at once removed, or at all events displaced. Unless embedded in the conjunctiva or cornea most particles if left to themselves are swept by the natural stream of tears into the inner corner of the eye, where they cease to annoy. Rubbing the eye should especially be avoided.

Dust or infective material may lead to certain forms of septic inflammation, which often convey to the patient the same impression as grit in the eye, with hyperæmia of the mucous membrane, increased flow of tears, and often some flakes of lymph, which may be sufficient to cause the lids to adhere.

The milder forms of **conjunctivitis,** with mucopurulent or catarrhal exudation, being contagious, sometimes occur in epidemics, especially in schools. They are best treated by mild astringent or antiseptic lotions, such as 1–5,000 solution of perchloride of mercury, a 10 per cent. solution of boric acid or borax in distilled water, hazeline ♏ xx to ℥ j, acetozone or zinc chloride ½ grain to the ounce, the acetozone solution being filtered after standing four hours. To prevent the edges of the lids from sticking together, a simple ointment such as that of boracic acid should be applied along the edges of the lids at night. Isolation is necessary to prevent extension of the disease to others.

In the more severe attacks attended by purulent discharge, more drastic measures are necessary, such as the application of a solution of nitrate of silver 10 grains to the ounce, or of protargol 15 grains to the ounce, applied once to the conjunctival sac, followed by a continuance of the treatment by boracic solution and ointment. A septic form of conjunctivitis, commencing in one eye, though commonly affecting both, is frequently met with in cities during the summer as a result of infection by foul dust from wood pavements.

Another form, especially common in children, is **phlyctenular conjunctivitis,** characterised by the presence on the ocular conjunctiva at the edge of the cornea of small white tubercle-like collections of leucocytes surrounded by a limited vascular zone, into which a leash of dilated vessels can be traced across the white part of the globe. It is usually accompanied by photophobia and lachrymation, and is best treated by the local application of yellow mercuric oxide ointment gr. iv-viij to the ounce in soft paraffin, or by calomel locally, and a general tonic regimen, with an open-air life.

Small hæmorrhages in the conjunctiva are very conspicuous on account of the bright colour developed by oxidation of the hæmoglobin through the thin membrane. They often accompany attacks of conjunctivitis, and may result from the paroxysms of whooping-cough or some local injury. They usually disappear in the course of a few days without any treatment.

Episcleritis, an inflammation of the fibrous tunic of the eye, producing a reddish purple patch, usually between the cornea and outer canthus, sometimes results from exposure to cold as in motoring; it is apt to last for some months, and to relapse. Pain and tenderness are variable, but inflammation may extend to the interior of the eye. It is more often met with in women than in men, and is generally associated with a rheumatic or gouty diathesis. Locally warm fomentations, with opium, massage, and leeches to the temple, may be required, but the main treatment consists in the administration of salicylate of soda, iodide of potassium, or other constitutional remedy appropriate to the systemic conditions.

Ciliary blepharitis or Tinea Tarsi, a common inflammatory affection of the lid margins, is usually chronic, and either follows some acute fever or is associated with refractive errors or some general constitutional disturbance. The ciliary border is red and eczematous, and

more or less destruction of the eyelashes is produced by the inflammation extending to the hair follicles. The best treatment is afforded by an alkaline solution such as that of bicarbonate of soda 15 grains to the ounce, with a weak mercurial ointment such as Unguentum Hydrargyri Nitratis, 1 drachm, diluted with 7 drachms of white vaseline, applied along the edges of the lids night and morning. In severe cases benefit results from removal of the damaged lashes and painting the borders of the lids with a solution of silver nitrate 10 grains to the ounce.

Meibomian cyst, resulting from chronic inflammation of the deep part of a Meibomian gland, with retention of secretion, is the commonest form of tumour of the lid. It forms a small hard white and painless swelling beneath the skin, and on everting the tarsus a bluish spot is usually seen, marking its site. Treatment consists in incising this spot, and evacuating the fluid and solid contents by pressure or a small scoop on the conjunctival surface. Such a cyst may suppurate, and must then be evacuated. Others may appear, whether the first be removed or not. They may be left alone unless very conspicuous, and in time usually shrink to some extent.

More common are the small hard sebaceous or epithelial collections at the orifices of the glands at the lid margins internal to the lashes, which appear as little yellowish white spots slightly raised above the edge of the lid. They are either soft or gritty, and may sometimes be gently picked or rubbed off. They only rarely give rise to slight irritation.

Stye has been already mentioned in connection with furunculosis of the skin. **Tophi** sometimes develop in connection with the tarsal cartilages as in the auricle, and may be similarly dealt with, but they are best left alone.

A trifling ailment is a slight shimmering of the orbi-

cularis muscle occurring involuntarily at certain times. It has been spoken of as " live blood " and its occurrence is an indication for the use of mild mercurial purgatives and salines.

The yellowish dry patches appearing at the inner corner of the upper lid, known as xanthelasma, are sometimes regarded as an indication of chronic liver disturbance and are best left untreated locally.

Muscæ Volitantes.—Black or grey spots floating in the field of vision are commonly discovered by adolescents at some time, and can be observed by many individuals throughout life when looking at a plain light surface such as a white wall or cloud, or when reading or working with the microscope. They represent small particles in the vitreous and follow to some extent the motions of the eye. Beyond being the cause of some concern when first discovered and becoming more obtrusive with defects of health, they are of no importance, and attention should be diverted from them. Synchisis scintillans is a somewhat similar condition due to minute flakes of cholesterine in a fluid vitreous, possibly derived from a small hæmorrhage. The appearance is likened to a shower of glittering particles with each movement of the eye, and has been compared with that of the liqueur known as Eau de Dantzig when viewed with the ophthalmoscope. It is not amenable to treatment.

It is a common experience after receiving a blow on the head or a sudden jar of the body to " see stars," or floating scintillations for a few seconds. This is probably associated with concussion in the optic tracts, as it is equally apparent when the eyes are closed and subsides rapidly.

Some interference with vision accompanied by a sense of irritation in the eyes not infrequently follows exposure to strong light, such as the glare reflected from snow or water, or from looking directly at electric lamps or the

sun, and some years ago was commonly known as " eclipse blindness " on account of the number of persons so affected by viewing an eclipse of the sun without adequate protection. It results from fatigue of the retina, and passes off with time and protection from bright light.

THE EAR

The diseases of the ear which will be considered are chiefly characterised by pain, discharge, and either partial loss of hearing or the development of subjective sensations.

The auricle being composed almost entirely of skin or fibro-cartilage may be involved in the disorders peculiar to the dermal covering, such as eczema, herpes, etc. These do not call for any treatment other than that applied to the rest of the skin.

Deposits which are peculiar to the pinna are small chalk stones composed of urate of soda, regarded as an indication of gout, and which sometimes itch slightly. They may either be picked out when superficial or absorbed by compresses of carbonate of soda or lithium solution. Another is hæmatoma, resulting often from injury, and made up of blood effusion between the cartilage and skin. This usually subsides to a great extent spontaneously, though often leaving some thickening which is rather conspicuous. It may therefore be considered worth while to aspirate such effusions, with aseptic precautions, but should suppuration occur, as occasionally happens, an incision must be made to free the pus.

The meatus is liable to inflammation from direct injury, particularly in scratching or attempts to remove foreign bodies, and sometimes by extension of skin disease from the scalp. This is productive of pain and subsequently discharge, and where the lumen is obstructed may involve some temporary loss of hearing. There are

redness and swelling of the skin round the meatus, a sense of fulness, throbbing, and occasional tinnitus, followed by serous or sero-purulent discharge. The epithelium becomes white and swollen, occupying a considerable portion of the lumen, and separates in flakes. Pain is increased by movement of the jaw or pressure over the ear, and there may be a sense of itching and heat, sometimes attended by slight fever. These developments may follow the penetration of flies and other insects into the meatus, or the introduction of water when bathing. In the initial stage a cold compress or astringent lotion will give some relief. When the secretion is established the meatus should be washed out with a warm solution of boracic acid 10 grains to the ounce, and later with equal parts of alcohol and water; or powdered boracic acid may be blown in with the aid of a small screw of paper. Should the discharge continue, the surface may be painted with solution of nitrate of silver 30 grains to the ounce, Liquor Plumbi Subacetatis, or Ung. Hydrarg. Subchlor. 1 drachm to the ounce.

A similar condition to this often results in children from infection by pustular eczema, conveyed by the fingers or extending from the head. This is best treated by dilute white precipitate ointment, after removing the crusts with warm sweet oil.

Furuncles.—The occurrence of small boils in the skin of the meatus, due to inflammation of sebaceous follicles, leads to the development of acute pain, while the swelling may close the lumen. The usual site is just inside the meatus, on the anterior or posterior wall. The deeper it is situated the greater the amount of pain. As in other diseases of the meatus, the pain is increased by movements of the jaw or pressure on the ear. Not uncommonly one such boil succeeds another from auto-infection. With discharge of the contents, the pain and swelling subside. For immediate relief a hot fomentation

should be applied over the ear and the side of the head, while a hot concentrated solution of boracic acid in alcohol should be instilled in the ear, or a plug of cotton-wool may be used, soaked in glycerine and laudanum, or laudanum, tincture of belladonna, and saturated alcoholic solution of cocaine, in equal parts. Pus should be released by pricking the boil as soon as it can be recognised, and subsequent formation of boils can be prevented by the application of dilute nitrate of mercury ointment. Opium may be required to procure sleep, and constitutional treatment is necessary to restore the health, or such drugs as arsenic or sulphide of calcium given internally may control the further development of boils. Perhaps the most effective remedy is the injection of an antidotal serum prepared from the organism present.

Cerumen.—As a result of high temperature, and perhaps more often in elderly people, a collection of wax and epithelium may cause a hard plug in the meatus, which acts as a foreign body, producing deafness, pain, and tinnitus, occasionally associated with vertigo or dry cough. This may sometimes be removed by syringing with warm soap and water. If it is too hard, it should first be softened by dropping into the ear at night a warm solution of bicarbonate of soda 10 grains to the ounce, or bicarbonate of soda gr. xx, glycerine ʒ j and rosewater ℥ j, or a few drops of olive oil poured in from a hot teaspoon.

In India similar plugs in the meatus are made up of a vegetable fungus mixed with epithelium, the condition being known as Otomycosis. Similar symptoms result, often accompanied by slight serous discharge. The treatment consists in frequent syringing with warm solution of perchloride of mercury, 1 in 1000, chlorinated lime 2 grains to the ounce, or hyposulphite of soda 4 grains to the ounce, followed by alcohol as an astringent, and to dry the surface.

During the recent epidemic of influenza many instances have occurred of sudden intense pain in the ear, sometimes followed by deafness, which appears to be due to small hæmorrhages both in the internal ear and tympanic membrane. As in other kinds of earache, pain may be allayed by the instillation of a solution of morphia or laudanum, and a hot application to the side of the head. Other preparations that may be employed in the same way are simple hot water, almond oil, 10 or 20 per cent. solution of glycerine or carbolic acid in water, or a 20 per cent. solution of cocaine. Externally, poppyhead fomentations or a hot flannel bag of camomile flowers are popular remedies.

Otorrhœa, or chronic purulent catarrh, following middle-ear disease, is commonly associated with the exanthemata or naso-pharyngeal catarrh, especially in early life. In young children acute otitis may constitute a very obscure complaint, giving rise to high fever lasting several days without any lesion being apparent, until discharge occurs, unless the ears are specially examined. In all conditions in which the meatus is occluded by exfoliation or discharge, the instillation of a 3 per cent. solution of hydrogen peroxide or mopping out with ozonic ether affords a ready method of clearing the lumen.

THE NOSE

In connection with the skin of the nose and adjacent parts, dilatation of capillary veins sometimes produces spots or small nævoid patches, which are mainly objectionable on account of being conspicuous. They are best obliterated by the galvanic current conveyed through a platinum needle, both poles being applied to the dilated vessel.

Acne rosacea consists of small patches of dilated capillaries about the nose, this being a terminal portion of the circulation, accompanied in later stages by hyper-

trophy with increased secretion of the sebaceous follicles. Outbreaks of deep red spots occur at intervals, and are very disfiguring. The disturbance has been referred to indigestion, exposure to weather, and perhaps in many cases to the abuse of alcohol, though as previously mentioned congestion of the nose may be associated with interference with the circulation, exerted by tight clothing, whether of the neck or waist. The treatment consists in removing any cause of indigestion or of embarrassment of the circulation, and attending to the general health. Locally some preparation of sulphur, either ointment or lotion, or lotion of perchloride of mercury, appears to exert some beneficial effect, probably by controlling decomposition in the contents of the follicles. In severe cases the dilated vessels may be scarified, hæmorrhage being restrained by the use of perchloride of iron or liquefied carbolic acid; or recourse may be had to the galvanic needle. Only small areas should be thus treated at one time.

Lipoma nasi is characterised by the development of irregular patches at the tip and alæ of the nose, often of a purple colour. It occurs in elderly men and is usually attributed to alcoholism. The protuberance is due to a general hypertrophy of the skin, subcutaneous tissue, and sebaceous follicles, and not to adipose tissue alone. Treatment consists in discontinuing the use of alcohol, and shaving off the thickened skin, leaving the deeper layers with portions of the glands, from which renewal of epithelium spreads over the raw surface. During this process protection should be afforded by a simple ointment, as in skin-grafting.

The interior of the nostrils, except for superficial disturbance of the mucous membrane, is generally the province of the surgeon.

In hot dry weather either irritation or soreness may result from desiccation and the inhalation of irritating

or septic dust. This may be relieved by introducing into the nostril, with the little finger, glycerine and water, or hazeline ointment.

Hyperæmia and swelling of the mucous membrane, with partial obstruction of nasal breathing, may be remedied by a spray of adrenalin solution 1 to 1000, directed into the nostril, or by sniffing the vapour of menthol and camphor, using the solution given on p. 98. This local anæsthetic is also of value in suppressing the continued and violent attacks of sneezing from which some individuals suffer, apart from catarrh. These vaso-motor disturbances are specially prominent in the condition known as hay-fever, associated with inhalation of grass pollen during the early weeks of summer, accompanied by sneezing and lachrymation. If the patient is unable to avoid the surroundings in which the attacks are set up, relief may be obtained by spraying or painting the interior of the nares with a solution containing 2 grains of cocaine to 2 drachms of 1–1000 adrenalin solution. This application needs repetition at intervals of three or four hours, and is a valuable local anæsthetic.

Ozæna.—This term has been comprehensively applied to foul-smelling discharge from the nose, usually not apparent to the patient. It covers a very large number of local conditions, such as atrophic nasal catarrh, caries, and necrosis of the bone, tuberculosis, and other affections of the mucous membrane, the presence of foreign bodies and rhinoliths, as well as purulent affections of the accessory sinuses, and some forms of new growth which require careful investigation and independent treatment.

Chronic or **hypertrophic rhinitis** most commonly occurs in children, associated with repeated attacks of ordinary catarrh, adenoid vegetations in the vault of the pharynx, enlarged tonsils or obstruction of the nares *from* any cause. In the early stage the disease is char-

acterised by continuous thin mucous or muco-purulent discharge, with congestion of the mucous membrane. If untreated the mucous membrane becomes thickened by swelling and congestion, especially over the turbinate bones, and finally by hypertrophy, infiltration with inflammatory material, and increased size and activity of the glands. The symptoms which ensue are blocking of the nose with frequent need to clear it, a nasal tone of voice, a vacant expression due to mouth-breathing, and sometimes deafness from extension to the orifice of the Eustachian tube.

Reflex disturbances may occur in the respiratory system. Posterior rhinoscopic examination discloses granular pharyngitis, with over-growth of gland tissue in the vault of the pharynx and bulging of the posterior extremities of the turbinate mass in the region of the posterior nares.

In **atrophic rhinitis,** sometimes referred to as dry or fœtid catarrh, or ozæna, the changes are rather in the opposite direction of shrinking and atrophy of the mucous membrane and glands. The nasal cavities appear unusually large, the membrane being paler than natural, and covered with yellowish green adherent crusts, decomposition in these supplying the fœtor which is generally present.

Treatment in both instances must be directed to the general health. A tonic regimen, with cod-liver oil and maltine, or the iodide or phosphate of iron in the form of syrup, should be prescribed. Provided the nostrils are not occluded a nasal douche should be used, one of the best solutions being that known as Dobell's, mentioned on p. 100, or a saturated watery solution of acetozone, or a 3 per cent. solution of peroxide of hydrogen. In some cases it may be necessary to dislodge some of the crusts with the aid of the speculum beforehand. Failing the use of the douche, a solution

may be employed in spray, such as the mixture mentioned on p. 98, diluted if necessary with liquid petroleum, or a solution of thymol gr. x to an ounce of the same medium. Tannic acid, sulphocarbolate, and iodide of zinc in solutions of the same strength in water are also used.

The advanced stages, more particularly of the hypertrophic form, demand the surgeon's interference in order to remove obstructing masses and clear the passage.

In the atrophic form crusts should be removed by softening them with boric ointment overnight, and washing out the nares with bicarbonate of soda solution 5–20 grains to the ounce of water, or one of the collunaria described on p. 100.

Small furuncles not infrequently occur in the ala nasi either just within or outside the nostril, and are very painful. They result from the irritation of dust, and no doubt also from scratching with the finger-nail. Their treatment is much the same as that recommended in connection with the external auditory meatus.

Epistaxis is mentioned in the chapter on the Circulatory System.

GENITO-URINARY SYSTEM

Balanitis.—Accumulation and decomposition of secretion under the prepuce result, particularly in hot weather, from neglect in the matter of soap and water, and in cases of phimosis from inability to properly expose the fold behind the glans. This leads to irritation, and later to actual soreness from the development of fatty acids and bacteria—sometimes associated with inflammatory œdema of the skin and pus-like discharge. It is easily remedied by cleanliness, and should not be allowed to occur. One point of interest lies in the close resemblance of the Smegma bacillus to that of

tubercle in general appearance and staining properties, as well as, to some extent, in resistance to acids, which has led now and then to suspicion of tuberculosis in the genito-urinary tract when it has been discovered in the urine. Adequate decolorisation by acid in preparing slides should prevent this mistake, as the Smegma bacillus does not retain the fuchsin stain as completely as the tubercle bacillus when so treated.

In the female similar conditions may prevail as regards the vulva under like circumstances of neglect, and the bacilli are then to be met with in greater quantity in the urine. Owing to the admixture of other local discharges, the discovery of pus albumen, blood, or organised deposits in the urine of females may often be discounted unless the specimen has been obtained by the use of the catheter.

Vulvo-vaginitis in little girls may in some measure be regarded as the counterpart of the preceding, being commonly the result of dirt and neglect, and associated septic infection, but owing to the wider scope for extension and greater inaccessibility of the passages, it is a very much more serious and protracted matter from the point of view of treatment. Added to this, the liability of infection to be conveyed not only to the patient's eyes, but to others, renders the most stringent precautions necessary in order to limit the disease as well as to cure it. One of the first things the practitioner has to do is to combat the idea of specific infection, which is often advanced and can be established only in very rare cases by other evidence than that of the presence of diplococci in the secretion, the gonococcus being by no means a distinctive organism.

The important points in the case of this affection are isolation, absolute cleanliness, the removal of any ascertainable sources of irritation, and the free use of antiseptic or astringent lotions, such as perchloride of

mercury (1–2000), boracic acid 4 per cent., sulphate of zinc or alum 5 grains to the ounce, or as the Lotio Sulphatum—

℞. Zinci Sulphatis . . .	gr. xxx
Aluminis	gr. xxx
Ferri Sulphatis . . .	gr. xx
Cupri Sulphatis . . .	gr. ij
Aquam ad.	ad ℥viij

This may need some further diluting, as it contains about 10 grains of salts to the ounce.

Discharge should be first washed away with warm water, and the superficial parts afterwards dusted with iodoform. The applications should be made at the body temperature by means of an irrigator, the labia being held well apart.

Aphthous Vulvitis causing superficial ulceration with accumulation of fungus, epithelium and dried blood on the labia requires similar treatment. Both conditions call for tonics and a liberal regimen.

Enuresis.—Nocturnal incontinence of urine is not uncommon in both sexes, though more frequent in males, up to the age of puberty, and may be connected with defective nursery instruction, as it usually yields to disciplinary measures.

Lack of control over the bladder is so general in infants that it sometimes continues unnoticed later into childhood than is reasonable, so that complaint is not usually made till some occasion arises for the child to leave home, either to go to school or perhaps to a convalescent institution.

The condition under consideration must be regarded as a habit and not the occasional effect of the irritation caused by threadworms, long prepuce or calculus or growth in the bladder, or even the loss of control which may accompany or follow an acute illness, though these causes should be borne in mind and carefully excluded,

Habitual incontinence runs on from infancy and is scarcely ever interrupted by a definite interval.

The most efficient remedy consists in waking the child at intervals to pass water—at first every three hours, then every four, gradually lengthening the interval till the whole night can be passed without disturbance. After six or seven years of age a week of such treatment is usually sufficient. Tonics, cold baths, and the administration of belladonna increased till its physiological effects appear may expedite matters. Tinctura Lycopodii ♏ xv–lx and Antipyrin gr. v–x have been given with the same object. A practical expedient is to fasten an empty cotton reel by means of a tape over the lumbar spine, so as to prevent dorsal decubitus, as it is in this position that the accident usually occurs. The application of a faradic or galvanic current, the poles being placed over the upper lumbar region and the perineum, has been made with good effect. In obstinate cases, Sir Henry Thompson recommended the application of silver nitrate solution (gr. x ad ℥ j) to the neck of the bladder. Some benefit may be associated with restraint in taking fluid for two or three hours before bedtime.

Dysuria.—Undue frequency and urgency in the call for micturition are associated not only with conditions in which there is actual polyuria, but with states of the bladder and urine which are not necessarily pathological. At the end of the summer, or still more after residence in a hot climate, the bladder has become so unused to distension that discomfort occurs when the contents perhaps do not exceed six ounces, this intolerance passing off in a few weeks or days, especially if it is not too readily indulged. Marked acidity or alkalinity of the secretion likewise causes irritation, and may vary with the time of day and character of the food. In many instances of strongly acid urine a deposit of uric

acid or oxalate of lime takes place which may supply an additional indication to that afforded by the rapid and intense change produced on litmus paper.

The exhibition of alkalis and a preponderance of vegetable food will generally correct this abnormality.

The opposite condition of over-alkalinity, excluding ammoniacal urine which is generally associated with chronic cystitis, usually accompanies acid dyspepsia, the urine being alkaline in proportion as the gastric contents are acid. This state is often associated with separation of phosphates, either as a white precipitate rendering the urine cloudy when passed, or appearing as an iridescent pellicle on the surface after standing. In either case tricalcic phosphate is the material separated.

It may be owing to the absence of muscular exertion in the early hours of the day, or the preponderance of vegetable food in the first meal, that this alkalinity of the urine and associated frequency of micturition are most marked before noon.

Frequent micturition from this cause may be remedied by increased animal food, and the administration of benzoate of ammonia in 10-grain doses. Irritation due to over-concentration of the urine may be corrected by an increase of fluid. The presence of some unusual constituent in the urine derived from the food or faulty metabolism has a similar effect, depending perhaps on idiosyncrasy—such articles of diet as tea, champagne, and asparagus may be mentioned, and the effect of glycosuria apart from polyuria.

In all cases of frequent micturition, tincture of hyoscyamus, the bromides, dilute hydrocyanic acid, and infusion of buchu have a sedative effect. There is a nervous element in most, and some may be regarded as entirely neurotic.

Hæmaturia.—The causes of this occurrence are manifold and usually serious, but there is one form

occasionally met with in children which is of little account and may easily be avoided. This is hæmaturia usually occurring in the spring, and associated with eating rhubarb. A sufficient number of cases have appeared annually in the early months of the year to render this matter quite certain. The attacks come on unexpectedly in otherwise healthy individuals, and naturally give rise to some alarm ; but quickly subside and are not accompanied by any serious symptoms. The blood, which is generally abundant enough to render the urine quite red, is accompanied by crystals of oxalate of lime derived from the rhubarb, but there is no albumen beyond what may be attributed to the blood itself.

Menstruation is often attended both by pain and temporary change in disposition, which may be more marked in some individuals and on some occasions, and may even be attended by syncopal attacks.

At these times it is very important to avoid chill and over-fatigue, and it need hardly be said that any device to arrest or postpone the natural process, sometimes attempted in view of particular engagements, is to be seriously deprecated. Relief from pain is generally obtained by lying down or raising the feet to a level with the body, and such drugs as ammonol or chloretone in 5-grain doses will relieve minor pain and discomfort, but the treatment of severe dysmenorrhœa is a more serious matter. The use of opiates is especially to be avoided.

Towards the cessation of the menstrual periods at about fifty years of age, various peculiar symptoms—psychical changes and neuroses—are prone to develop, and may give rise to much speculation and perplexity in diagnosis unless this climacteric state is recognised. Syncopal attacks, vertigo, headache, mental depression or excitement, and various vaso-motor phenomena, such as flushing, tingling, pins and needles, or sensations of

cold patches and nervous shivering occur. The psychical changes may be very marked so as to call for seclusion, constant companionship, or even removal to an asylum, but these more serious developments are, fortunately, comparatively rare, and the minor ones are intermittent. A socially quiet life for a time and the bromides, with valerian or asafetida, ichthyol 5 grains in pil. or other anti-spasmodics, may be of some use occasionally.

INFANTS

At the time of birth the anatomy of the child is not absolutely complete, and in many instances the establishment of function is delayed for some weeks. The average height is just under twenty inches, the increase for the first year being eight, and for subsequent years about three inches, so that the height is about doubled in six years, and by fourteen growth has reached completion to within one-twelfth of the full stature. The average weight of the infant at birth is 7 lb. There is commonly a slight loss of weight during the first week of life, and then a steady increase amounting to about 6 ounces a week in the first three months, 5 ounces in the second three months, and 3 ounces a week for the remainder of the first year. Variations occur very readily in connection with slight disturbances, but the average is usually made up when one day is compared with another. Both temperature and pulse-rate are higher in infants than in adults, the normal temperature being 99° and the pulse-rate declining from 130 to 140 at birth to 100 at the end of the fifth year. At first the special senses are undeveloped, objects and sounds not being distinguished till the child is a week or two old. The lachrymal secretion does not appear till about the second month, and the secretion of the skin about the same time. Perhaps more important is the delay in

functional activity of the salivary glands and pancreas. Saliva is only sufficient to moisten the mouth until about the fourth month, but it does not exert any amylolytic effects until towards the end of the sixth to the ninth month, and it may be assumed that the same is true of the pancreas, so that starchy materials cannot be digested before this. Deficiency of bile acids in the early months is sufficient to account for the incomplete assimilation of fats in excess. The stomach at birth has a capacity of 1 to 2 fluid ounces, doubled by the end of the first month and reaching 10 ounces at the end of the first year.

The infant is usually able to hold up his head after two months, to sit up after seven months, and stand at twelve months. Attempts to hasten these muscular efforts may result in spinal curvature or flat foot, the muscular and ligamentous structures not being adapted to sustain the weight of the body at an earlier period. At the end of the sixth month the teeth begin to appear, and it is about this time that dribbling of saliva is most apt to occur. Their appearance may be attended with febrile attacks, irritability, disturbances of digestion, and sometimes skin eruptions, or even convulsions, but these must not be hastily attributed to teething. These symptoms are usually met by laxatives and small doses of bromide of potassium. Only very occasionally, where there are great vascularity and tension in the gums, should recourse be had to scarification. This may afford relief by diminishing hyperæmia, but it is very questionable if it facilitates eruption of teeth.

Perhaps the earliest abnormality noticed immediately after birth is the misshapen appearance of the head, called caput succedaneum. It is a form of local œdema, with congestion and some blood extravasation in the scalp, which disappears of itself within twenty-four hours. Distinct from this is the indented appearance due to

cephalhæmatoma, the external form of which usually develops just after birth, and is distinguished by the presence of a raised ring at the circumference, though it may be elastic and fluctuating at first. The condition calls for no treatment, and subsides of itself in the course of a few weeks.

Stomatitis, whether catarrhal or aphthous, is generally benefited by small doses of rhubarb and soda, and the local application of the glycerine of borax. Symmetrical superficial ulcers over the hard palate, described as Bednar's Aphthæ, may be touched with a solution of permanganate of potash 5 grains to the ounce, or boric acid 15 grains to the ounce, or with lapis divinis composed of equal parts of sulphate of copper, alum, and saltpetre fused together. In the parasitic form of stomatitis known as thrush, occurring in weakly infants, the whitish patches should be painted with a solution of sulphate of copper or carbolic acid 2 grains to the ounce of water.

Icterus Neonatorum.—This general yellow staining of the skin usually appears about the second day after birth, and lasts about a fortnight. The skin seems to be chiefly affected, and there are no evidences in the conjunctiva or secretions, nor are there any symptoms, but while it lasts there may be some check to nutrition and growth. It is still doubtful whether there is any local disturbance in the liver, or whether it may not be due entirely to blood changes in the skin. Beyond bathing no treatment is called for, and the practice of administering calomel is of very doubtful value.

Erythema neonatorum is characterised by deep redness of the skin soon after birth, which may be associated later with some desquamation. The treatment consists in avoiding irritation by soap, employing oatmeal water instead, and the subsequent application of a dusting powder of zinc oxide 1 ounce, powdered starch 4 ounces.

Vomiting in infants is usually associated with overfeeding or the administration of unsuitable food. The best treatment consists in diminishing the amount or altering the constitution of the diet, usually in the direction of making it more dilute and more alkaline, and increasing the intervals between meals. If diluted milk or whey is rejected it may be necessary for a few days to substitute veal broth, or albumen water consisting of the white of four eggs to the pint of water sweetened with cane sugar or lactose.

Diarrhœa commonly occurs in children and infants from irritation or fermentation in connection with negligence in diet. Suckling infants may develop looseness of the bowels from the colostrum, or other features of the milk dependent on emotional disturbance, or from variation in health or in food on the part of the mother; while those fed artificially are liable to suffer in consequence of lack of cleanliness in connection with feeding bottles or unsuitable food. The stools, besides being more liquid and numerous than normal, are usually green in colour, offensive, acid in reaction, frothy, and contain much undigested curd. There is excoriation of the nates, increased peristalsis with abdominal distension, attended by pain and restlessness. The tongue is furred, desire for food capricious, and wasting is obvious in a day or two. If the attack does not quickly subside there may ensue a chronic catarrh or dysenteric form of diarrhœa, with emaciation. The countenance becomes drawn, the eyes sunken, cyanosis or convulsions occur in bad cases, and in such death not infrequently ensues.

Treatment.—Mild cases may be relieved by partial starvation and a laxative dose of carbonate of magnesia gr. v or

℞ Pulv. Rhei . . . gr. iij
Sodæ Bic. . . . gr. jss
P. Zingib. . . . gr. ss

Desiccated milk such as Horlick's, barley-water, arrow-root-water and whey (2 ounces of either with a small teaspoonful of white sugar), barley-water 10 ounces, white of egg ʒ ss, white sugar ʒ j or veal broth may be given in quantities suitable to age, instead of milk, when curds appear in the motions. For the first day castor oil emulsion or fractional doses of calomel should be given every two hours to clear away the irritating intestinal contents, and when the stools approach the normal in number and appearance, a sedative mixture such as

℞. Sodii Bicarb.	. . .	gr. ij
Bismuth. Carb.	. . .	gr. jss
Pulv. Tragac. co.	. . .	gr. j
Sp. Chloroformi	. . .	♏ ss
Aq. Cinnamomi	. . .	ad ʒ j

may be given every four hours.

Bismuth subgallate gr. ii–v may be substituted in this mixture if diarrhœa continues. Among domestic remedies a small quantity (ʒ j) of brandy, or a teaspoonful of raw arrowroot is often effective.

Constipation is not uncommon in quite young infants and sometimes depends on absence of peristalsis in the colon. This may be excited by abdominal massage or by introducing the tip of the little finger, a glycerine suppository, or a small piece of white soap into the anus. More often a general laxative may be required, such as a teaspoonful of olive oil or a small piece of mannite; the latter may be given in the milk of artificially fed infants. In those who are being suckled it is often best to give some laxative to the mother, such as stewed fruit, confection of senna, or cascara, which affects the infant indirectly through the milk. In artificially fed infants it is most important to revise the diet, in the direction of diminishing the quantity of curd, increasing the fat and adding extract of malt, malted food, or even oatmeal water or finely ground oatmeal in small quantity to the

contents of the bottle. Administration of drugs is to be avoided as far as possible, but if other means fail, small doses of magnesia such as 3 grains of the carbonate or 1 or 2 drachms of fluid magnesia given several times a day in the milk are usually sufficient.

To stimulate the liver ¼–½ grain doses of calomel, grey powder, or Purgen twice a day, 15–30 minims of the aromatic syrup of cascara or of the Liquor Euonymin and pepsin, or syrup of figs may be given. In the case of older children the general and dietetic rules given for adults on p. 28 should be followed, but in regard to drugs it is often difficult to continue the administration of such as are nauseous, and pills are usually out of the question, so recourse must be had to such expedients as laxol, fig syrup, confection of senna, cascara chocolate, or Tamar Indien. It may be recalled that castor oil is the most satisfactory purgative for continued use, and when well shaken in milk as small a dose as half a drachm is quite effective and almost tasteless.

Flatulence and Colic in infants must be regarded as painful accompaniments of indigestion resulting from acid fermentation, and should be met by antacid and carminative remedies and correction in the mode of feeding. For the most part such fermentation results from excess or too hurried ingestion in the matter of food, which should be diminished in quantity or consistence, or be given at longer intervals.

The nurse's remedy consists in laying the infant on his stomach across her knees and patting his back, which may result in either eructation or vomiting, with some relief to gastric distension. Hot flannels to the distended abdomen are also employed with some good effect, especially when the gas is in the intestines. The most urgent symptoms may be relieved by giving teaspoonful doses of lime water and cinnamon, dill or peppermint water in equal parts, or grain doses of carbonate of am-

monia or soda in these waters, or soda-mint tabloids in syrup, or the following mixture may be administered:

℞. Magnesii Carb.	gr. jss
Pulv. Rhei	gr. ½
Syrup. Zingib.	♏ v
Aq. Menth. Pip. . . .	ad ʒj

Every two hours.

The soothing of the child and relief of distension must first be considered, but partial starvation is necessary for some hours, and the resumption of feeding should be gradual and modified in accord with the necessities of the case.

CHAPTER VIII

MAINTENANCE OF INDIVIDUAL HEALTH

UNDER this heading it is not intended to study valetudinarianism in its morbid aspect; but merely to point out some common features in everyday life which are either to be encouraged or avoided, so as to steer clear of some of the disorders which may develop from them, as well as those which are imposed from without, so far as this can be done by what may be considered ordinary means. At the present time it is even considered necessary that children should be taught to breathe, to walk, and to vocalise, functions which it might be thought could be left to natural instincts. It is only in exceptional cases in which the developments of these instincts are deficient or are interfered with by some unusual circumstance that such instruction is really required; but it is none the less evident that the proper performance of these matters is essential to the well-being of the individual. Numbers of people scarcely exceed the ordinary requirements of breathing and physical exertion for days together, losing sight of the fact that the maintenance and development of a reserve power is a most important safeguard against ill-health.

In regard to breathing, comparative stasis of the air in the lungs impairs the full oxidation of the blood, and encourages the local settlement and growth of micro-organisms, and the vigour of the lungs themselves. The

quality of the air breathed has necessarily an important bearing on the general health, both in regard to its vitalising qualities and freedom from injurious matter. The ordinary conditions of indoor life and the limitations imposed by clothing tend to discourage free respiratory movement, and it is valuable once or twice a day to take several full inspirations as part of the general routine. This ensures every portion of the lungs being fully expanded, and by encouraging for a brief period extra functional activity, helps to develop the chest, maintain reserve power, and prevent the incidence of pulmonary disease. When opportunity serves, the reserve power of the heart and lungs should be exercised and tested by such physical exertion as is suitable to the individual. There is usually no need in adolescence to make special provision for this, but it is noticeable how very frequently pulmonary disease, and especially consumption, attacks young people at an age when the exercises and games of school life are put an end to by the exactions of more serious occupations. It should therefore be looked upon as one of the duties of life to devote some minutes in each day, and some hours in each week, to the full exercise of these important organs. As age advances, indulgence in the violent exercises of youth is unsuitable, though the capacity for them might well be prolonged, certainly till mid-life, and can then find a substitute in those of a quieter nature. " Discern of the coming on of years, and think not to do the same things still, for age will not be defied." It should, however, be regarded as an axiom that no exercise is worthy of the name which falls short of increasing the rate of the respiration and pulse, and promoting a definite action of the skin. The value of exercise is by no means limited to the development of heart and lung power, but has an important influence in maintaining a healthy skin, and in promoting the general metabolism by the functional activity of the muscles, while exerting

a similar influence on the lymphatics as is accomplished in a minor degree by massage. The enjoyment of fresh vitalising air is unfortunately not within the reach of every one under modern conditions of city life, but it is well to remember that it is at its freshest before eight in the morning, which is the most suitable time for constitutional exercise, and is much purer during the night than in the day—during the winter months at all events—owing to the relative absence of smoke. When it is recalled that the organism absorbs twice as much oxygen in a given time during sleep as when awake, the great importance to health of free circulation of air in the bedroom is evident. It is during the night that the hæmoglobin of the blood is largely built up, and during the period of rest of the tissues oxygen is specially required to effect the complete oxidation and removal of the effete product of tissue waste. One of the principal features in the maintenance of health is the daily provision for full expansion of the lungs, and a supply of the purest of available air.

The question of the amount and distribution of sleep is one to which no uniform answer can be given as applied to all individuals. Some have worked hard and long with as small an allowance as three hours in the twenty-four, while others, particularly during growth and development, require twelve or more, and suffer when deprived of it. As a general average it may be said that the night should be half as long as the day, an ordinary sixteen-hour day being followed by an eight-hour night. When under stress of circumstances the period of activity is lengthened, say to twenty hours, it is more economical and refreshing to extend the rest to ten hours than to attempt to make up for deficient sleep by rest during the day or by working off the arrears by degrees on succeeding nights. It is as well to be aware of the fact that too much sleep is almost as detrimental to health and vigour as too little. On the one hand, insufficiency leads to impaired

nutrition, with loss of weight, the development of nervous irritability, impaired vigour, and loss of reserve power, though it is consistent, temporarily at all events, with increased nervous activity, resembling in this respect partial starvation, or at least restriction of food below the usual limits. The effect of too much sleep is to encourage the development of fat, with increased general bulk, a decline in nervous activity, dulness of the faculties generally, with defective power of attention, impaired memory, and mental lethargy. It was an axiom of Celsus that too much should be varied with too little, with a special tendency towards too little, and this applies to sleep as much as Celsus intended towards food. The difficulty with most people in regard to sleep is to get sufficient on account of the distractions of business and social matters, or sometimes, the inability to sleep when occasion offers. It is well to remember that excitement of the brain towards the end of the day makes sleep difficult, and the natural tendency in most people to become drowsy at ten or eleven o'clock at night points to a natural cycle of the nervous mechanism, and when this time is passed the brain becomes active again and sleep is more difficult to obtain some hours later.

The first hours of sleep are the most important and the most profound, disturbance after four or five hours being much less distressing and injurious than after one or two. Circumstances sometimes affect the distribution of sleep, and during very hot weather, as in the tropics, it is often a good plan to take two hours' rest and sleep in the middle of the day, and do with a shorter night, so as to take advantage of the cooler hours in the early morning; but this is a habit which needs to be acquired, and should be so adapted to the hour of the mid-day meal as not to follow immediately upon it, but should succeed the first hour of digestion.

The question of sleeping after meals is perhaps not

one that can be answered in the same sense for all. It is generally considered that to fall asleep, as most people are prone to do, when sitting quietly after lunch or dinner tends to arrest the early processes of digestion and permit of fermentation and dilatation of the stomach, with present discomfort and sacrifice of the nutrient value of the food. On the other hand, there is a natural disposition to hyperæmia of the digestive system after taking food, which involves relative anæmia of other parts of the body, so that a feeling of chilliness, especially in the extremities, and disinclination to mental exertion usually occur, and elderly people and invalids commonly sleep after easily digestible meals without hurt.

The first thing that commonly occupies the attention in the morning is the question of bathing, and the temperature of the bath. It may be considered highly salutary to expose the skin completely both to air and water at least once in the day, both as an exercise to the cutaneous vessels and for the purpose of removing the secretions from the surface and thus assisting to maintain not only the health of the skin but that of the body generally. After the relaxation of the cutaneous vessels in the night, the most appropriate application is that of cold water rather than hot. The actual temperature for most individuals should not be dependent on that of the atmosphere, but should be regulated according to the power of reaction of the circulation. The temperature of the cool bath is from 60° to 70° Fahrenheit; below this it is too cold for many, and above it is so nearly tepid as to fail in promoting reaction. Greater cold can be tolerated in a sponge bath than in one in which the body is entirely immersed. The duration of the bath should be such that the first sharp sensation of cold has worn off. The skin is then contracted, and a satisfactory reaction ensues, which is assisted by the exercise and friction of drying. One of the principal benefits of the cold bath as regards

the general health is the comparative immunity from the ill-effects of varying temperature in the course of the day and a general increase in the muscular tone. What may be considered indications for reducing the degree of cold are those instances in which blueness of the surface occurs and local anæmia, with numbness and coldness of the extremities. These features indicate that the degree of cold is beyond the reactionary power of the individual, and morning bathing should either be given up or pursued under milder conditions. The effect of some sudden application of cold to the surface in those who, from constitutional reasons, are pre-disposed is often apparently causative of sudden seizures of lumbago or muscular rheumatism. Though this may prohibit the use of the bath for a time on account of the difficulty of movement, it is no indication for giving it up, but rather for attending to the particular condition of the blood which is associated with the attack. The most important adjunct is abundance of fresh air by free ventilation in the bath-room, as the use of artificial heating, except for invalids, largely detracts from the invigorating effect of the bath.

For those who are unable to tolerate cold or even tepid water, the hot bath, at a temperature of 90° to 100° Fahrenheit, may be substituted. The immersion should be brief, not more than five minutes, and under these circumstances it is better to maintain the bath-room at a mean temperature of 60° to 65°. The hot bath is rather cleansing than invigorating, and on account of the relaxation of the surface vessels which ensues, it is really better taken at night just before going to bed than the first thing in the morning.

On rising and retiring it is a wholesome custom to drink half a pint of water, either hot or cold. This does not impair the appetite for breakfast an hour later, as does the early cup of tea and bread and butter, and it helps to make up the quantity of fluid necessary during the day,

a matter in which very many people fall short, besides acting as a natural laxative.

As regards swimming and bathing for pleasure, this is best indulged in before breakfast, though it is as well to take a biscuit or some fruit beforehand, and immersion should not be prolonged beyond five to ten minutes, or it will result rather in fatigue than refreshment. At other times, the precautions to be observed are the adjustment of the occasion so that it does not follow within two hours of an important meal, and the avoidance of suddenly checking natural perspiration by plunging into cold water while overheated, as many attacks of rheumatic fever have followed immediately on this erroneous practice. The degree of cold and duration of stay in the water are important matters, since extreme or prolonged abstraction of heat from the surface tends to contract the cutaneous vessels and presently those of the muscles also, thus concentrating the blood on the internal organs in what may be a dangerous degree of congestion; while putting a severe strain on the heart, which is thus called upon to sustain the effort of muscular exertion and of great increase of peripheral resistance in the circulation. It is probably this which induces that dangerous condition which has been unsatisfactorily termed "cramp," and which consists in sudden loss of power and consciousness, from which the subjects most rarely recover, even when rescued from the immediate danger of drowning. The condition is really one of acute cardiac overstrain allied more nearly to angina pectoris than to anything else.

Such attacks are fortunately rare, as they are almost invariably fatal, and it would be a pity if dread of such a calamity interfered unnecessarily with a healthy enjoyment. Provided bathers do not expose themselves to undue lowering of the surface temperature either by the intensity or prolongation of cold, or to exhaustion from attempting what is beyond their strength—for fatigue

occurs rapidly from exertion in the water, owing to continued abstraction of heat and contraction of the vessels in the muscles—bathing, at all events in the summer, can be conducted with a minimum of risk. It might be added that it is imprudent to bathe alone or to attempt a long swim when already fatigued. Spare individuals are more quickly affected by immersion in cold water than those with large muscles or much fat.

The subject of occupation before breakfast is one which has been much debated in recent years in regard to school life, and the consensus of opinion has been against any serious work before some food is taken. Objection cannot be made to being out of doors for a short time in the early morning, and this is never attended with the liability to syncope which in the young accompanies indoor tasks, nor is there the same objection to physical work or exercise for those who retire early ; but, more particularly in town life, exertion of any kind on an empty stomach is apt to be followed by lassitude before the day is far advanced, and is quite incompatible with late hours and responsible work during the day.

The subject of diet is too wide and complex to treat of in detail in a short space. The important feature, however, which is often lost sight of, is the proper interval between meals, which should be four or five hours, to enable digestion to be completed and to allow of a short period for physiological rest, before another is taken. In the course of the day it is better that the meals should be characterised by some prevailing class of food than that they should be all alike. It is customary, for instance, to employ carbohydrates principally for breakfast with a small amount of animal food, and to make the chief meal in the middle or at the end of the day one of animal food, with only a small proportion of carbohydrates. Animal food generally is adapted to growth and muscular exertion, and to the resistance of

cold. With the exception of milk it is unsuitable for infants and quite young children, but is particularly necessary after seven years until middle life. As people get old they do wisely to limit animal food and substitute fruit and vegetables, both for the sake of digestion and to accommodate their food to the less perfect metabolism of advancing years. It is generally admitted that the majority of people take more food than is either necessary or really wholesome. This to some extent merely leads to waste, but it also results in passing through the organism more dissolved nutriment than the functions of the body call for or are perhaps able to deal with, so that much of the impaired health depending upon imperfect combustion of food-matters depends as much upon excess of food as deficiency of work and oxygen. Besides a proper quantity of food and proper intervals between meals, and the necessary physiological work and respiratory activity, a due amount of simple fluid is required to keep the products of tissue-change in proper solution. A minimum quantity is two pints in the twenty-four hours, and should be made up chiefly of plain water or weak infusions such as tea or coffee. It is, however, marred by the addition of sugar and other soluble substances. The character of the food and amount of fluid should naturally vary with the season of the year, the loss by the skin in summer calling for at least double the supply that is sufficient in winter.

With regard to food, the demands of cold for heat-producing materials, such as fat and meat, are greater in the winter, but in the summer a more suitable meal can be made of carbohydrates, fruit and vegetables, approximating to the régime followed in the tropics. Variation in diet is not only an aid to appetite, but is beneficial for the system, and changes with the season afford the best opportunity of obtaining the most wholesome class of food at any time.

In connection with raw food, there are certain dangers which may be provided against when borne in mind. Salads, and especially watercress, are liable to convey parasites, unless protected during growth and carefully washed before being used. In the late summer and autumn, especially, there is a risk of introducing typhoid fever in such uncooked articles as water, milk, and oysters, and even in partially cooked whitebait. The risk of this largely disappears with the first frosts, but during the months from July to the end of November or December it is wise to avoid these things unless their source is unimpeachable or they have been submitted to a sufficient temperature in cooking. Water should be boiled for twenty minutes if required for drinking, and may be freshened by passing through a carbon filter; but for the most part in London and most of the large towns the water supply is under such careful supervision that danger from this source is reduced to a minimum. This is not quite the same in the case of milk, which often comes from great distances and is much mixed and subject to risks of indirect infection by the local washing of cans, sometimes with infected water. Milk can be sterilised by heating in boiling water for twenty minutes without being much altered in appearance or taste; it is then more easily digested, keeps longer, and is freed from living germs of disease. This is specially important for children and invalids who subsist largely on a milk diet.

In regard to supernumerary meals, which are taken rather as a matter of routine by invalids, especially those who are unable to digest a full meal, it may be considered that for those in average health these are unsatisfactory, and even unwholesome. Such are the early morning cup of tea and bread and butter, something at eleven o'clock in the morning, and more commonly afternoon tea. In many cases the taking of small quantities of food

at these times provokes a freer secretion of the gastric juice than is requisite for their digestion, producing the condition known as heartburn or acidity, and in any case impairs the appetite for the ensuing ordinary meal. There is not so much objection to taking fluids in the intervals—indeed, the best time for this is about an hour in advance of the solid food; and perhaps the same objection should not be raised to light supper in the case of those who defer retiring to rest till four or five hours after late dinner, but in this case the nutriment should be specially light and for the most part fluid, since the main functions of digestion are in abeyance during sleep and an undigested meal is one of the worst enemies to satisfactory repose.

A brief remark may be here made as to the danger of drinking quantities of cold fluid, particularly when over-heated. This is generally accepted and impressed on the young, being associated popularly with the occurrence of colic and various cutaneous eruptions, but greater danger lies in the spasmodic contractions set up, and I can recall at least one instance in which gangrene of the appendix was thus induced, involving a fatal termination within three days.

Deliberation in connection with meal-times is most important. In the words of Francis Bacon, "To be free-minded, and cheerfully disposed at hours of meat, and sleep, and of exercise, is one of the best precepts of long lasting."

In regard to the matter of clothing, it is unnecessary and would be useless to oppose what is customary and generally found convenient, but it may be pointed out that a great number of people err in the direction of employing too heavy clothing both night and day, and of submitting to unhealthy restriction of natural movement, not perhaps so much in the limbs as in the thorax and abdomen. Interference with the full and easy

movements of respiration tends greatly to limit their natural range, and to impose on the individual habitually a restricted degree of breathing. This in adolescence actually impairs the proper development of the body, and in all interferes not only with the due aeration of the blood, but also with its easy circulation, for the respiratory movements have an important influence on the flow of blood through the main veins, and the movement of the diaphragm exerts a similar influence on them both in the abdomen and thorax. Persistent constriction of the waist favours downward displacement of the solid organs in the upper zone of the abdomen, and has an undoubted effect in encouraging prolapse and hernia in the lower. One important result of abdominal constriction is the development under violent effort of inguinal hernia, instances having frequently occurred in boys in climbing or jumping while wearing a leather belt. The effect of a tight collar inducing cerebral congestion and headache has already been referred to in dealing with that subject. Constriction of the waist and lower thorax in impeding the circulation is sometimes indicated by congestion of terminal vessels in the nose and ears, and in some instances has led to temporary failure of vision, all which symptoms have immediately subsided on releasing the constricted area. The amount of clothing which should be employed, whether by night or day, should be just sufficient to prevent a sensation of chilliness, and must be adapted to the particular circumstances of the individual. The chief protection is required when inactive in the open air, as when driving, and the least during active exertion, or when sitting in a warm room. The difficulty of adapting oneself to variations in these different states is better met by extra wraps than by constantly keeping the body over-thickly clad. It is generally considered that loose-textured fabrics, owning a certain porosity, are both healthier and more comfortable than others. Such an

impermeable substance as the ordinary waterproof is perhaps the worst of all. The material which should be worn next the skin is the one which ought to be most definitely porous, and it is for this reason, rather than on account of their fibre, that woollen materials are usually advocated.

"Wool is more porous and more hygroscopic than vegetable fabrics, and is a slightly less perfect conductor of heat. While it absorbs moisture readily, it gives it off slowly, so that far less cold is produced by the evaporation from a woollen garment than from one made of vegetable fibre. It conserves the heat of the body, and protects it from the heat of the sun, the latter property being at its height if the garment be white."

"For work in a climate like ours flannel is the safest material to wear; if cotton or linen be worn, it must be loose-woven, so as to give some thickness and porosity to the fabric" (G. V. Poore).

Any smooth close material communicates chill too readily, and does not as a rule absorb the moisture. On the other hand some people find flannel too irritating to the skin, and it is not by any means essential to employ it; but whether silk, linen, or cotton be used, it should be so woven that the surface is not quite smooth and the general texture loose, allowing it to retain and transmit air readily. Perhaps the best alternative is the Chinese method of wearing a net next the skin which prevents complete contact. The main reason for advising such porous material is to provide against the alternation of heat and cold, wet and dry, which are inseparable from ordinary climatic conditions and changes of occupation, the principal danger arising from the rapid cold of evaporation while resting after exertion. It is customary to bring up the young to change into dry garments when moist from exertion or exposure to wet, and for the most part adults follow the same good rule. Many instances

of lumbago can be traced to remaining in damp clothes after being over-heated, the chill of continued evaporation being specially prolonged by the over-lapping of garments in the lumbar region.

The ordinary foot covering is particularly adapted to retaining moisture; and chilling of the feet in consequence, as well as exposure of the less protected ankles and shins to draughts, which are more common near the floor than is generally realised, are productive of the effects of a lowered blood temperature. Sufficient warmth round the middle of the body is the most important, and many instances of so-called indigestion are the result of insufficient clothing, and are at once remedied by a flannel belt. Even in the tropics, more particularly at night, as a protection against sudden lowering of temperature, such a flannel binder is usually worn, the absence of it often leading to serious attacks of abdominal pains and various forms of inflammation. Any special protection of this kind should be continuous, disorder arising from intermittence of covering, as is perhaps best seen in connection with the throat. There are those who advocate little, and others who advocate much, with equal success, the incidence of chill and catarrh being on those in the intermediate class, who vary one with the other. The natural effect of warmth is to dilate the vessels and an area so suffused is particularly liable to suffer by subsequent exposure to cold.

Speaking generally, the degree of protection by clothing must be adapted to the power of resistance of the individual to cold and the degree of exposure to which he is liable. Variations in what is usually worn are more productive of ill-health than being habitually too thickly or too thinly clad.

After food and clothing perhaps the next most important influence on the health and comfort of the individual is exercised by the dwelling and its surroundings.

One of the most important points is the character of the subsoil, preference being given to high ground and dry porous strata in which surface drainage is efficient. Gravel, sand, chalk, and rock form satisfactory foundations for houses. On the other hand, clay and marshland are unsuitable owing to the amount of water retained in them, and the cold damp atmosphere which usually overlies them. In towns where the surface is largely covered and drainage has been carried on for years there is less force in the objection, but in the country and in suburbs especially, the damp and cold atmosphere associated with this soil favours the occurrence of catarrh and rheumatism and is not conducive to permanent good health. The house itself may be unsuitable owing to incomplete ventilation and insufficient exposure to sunlight. One great objection to flats as compared with the ordinary house is the absence of a through current of air, the main direction of which is from the bottom to the top of the house, such as is maintained by an open staircase. Though it is usual to shut up rooms which are not in actual use, it is always well to provide for a change of atmosphere before re-entering a room which has been recently occupied. The previous history of a dwelling also should be taken into account, in that either tuberculosis or cancer may be apparently endemic, especially in old houses. Instances are on record in which as many as four successive and unrelated tenants have died of cancer within a few years.

Attention must also be paid to the question of water supply not only from the point of view of purity as regards organic matter, but as to the amount of calcareous salts in solution. The presence of an excess of lime constituting a hard water is sometimes productive of dyspepsia, constipation, and even urinary calculus.

The chief of the previous considerations have been in the direction of maintaining good physical health by

attention to the physiology of the body, but in order to live happily and contentedly it is necessary to consider the occupations and amusements of the mind. A due proportion of mental effort and relaxation is necessary to most individuals for this purpose, the time being also divided between interests in and out of doors. It is generally recognised that continuous occupation of one kind is more fatiguing than where some variety is introduced, although the same number of hours are employed. "The morning for creation, the evening for reading, and the afternoon for the work of the file" was the distribution suggested by Francis Bacon. Variation in occupation is not only less fatiguing and productive of the best work, but favours health by encouraging a proper balance of wear and tear in the bodily functions. The muscles may be rested while performing mental work, and undoubtedly the best rest from mental work is found in physical exertion.

CHAPTER IX

DIET

In the course of the preceding chapters references have occasionally been made to questions of diet, and it may be convenient to give a brief account of this subject.

The regulation of food in accordance with the normal requirements of the body in different periods of life, conditions of climate, and degrees of activity, as well as the modifications demanded by a disturbed metabolism, or actual disease, is a matter both of theoretical interest and practical importance. In order to sustain life a due amount and proper proportion of nitrogenous, non-nitrogenous, and inorganic mineral matter are necessary, and with these may well be considered, in connection with ordinary civilised life, the effects of such local and general stimulants as condiments and alcohol—not that these are necessary, but they are usually introduced into the customary dietary. Though the amount and proportion of these principles may be slightly varied, under the conditions already alluded to, none can be altogether dispensed with, and for the maintenance of good health the consumption of some part of the organic constituents in a fresh state is essential. The primitive food provided by nature for the development of the young, such as milk and eggs, may be taken as typically complete, containing all necessary constituents, their percentage constitution being estimated as follows:

Gautier

	Human Milk.	Cow's Milk.	Eggs.
Water	86·08	85·77	73·67
Albumen	2·48	3·04	12·55
Fat	4·28	4·04	12·11
Carbohydrate	5·69	4·03	0·55
Salts	0·02	0·54	1·12

Compare with these the following:

	Moleschott's diet for medium work.	Average diet in Paris.
Water	73·00	80·0
Albumen	4·58	4·1
Fat	2·96	15·0
Carbohydrate	14·25	
Salts	1·05	0·9

Sandow's training diet, consisting of about six pints of fluid, twenty ounces of meat, six ounces of fat, and twenty-eight ounces of carbohydrate food, represents potential energy of 4,462 calories, and is rather in excess of the average, being adapted to severe muscular exercise. The previous diets are calculated in the dry state, the water of the food and drink being tabulated together.

In actual food material the daily diet calculated by Moleschott for a man performing medium physical work would be represented as follows:

Meat	13½ oz.
Butter	2½ „
Bread	17½ „
Vegetables	16 „
Sugar	2½ „

The following is estimated as the efficient daily diet for a man of 150 lb. under different conditions of physical activity, reckoned in the dry state:

	Subsistence.	Rest.	Medium Work.	Severe Work.	Very Laborious Work.
	oz.	oz.	oz.	oz.	oz.
Proteid	2·32	3·52	4·59	4·94	6·50
Fat	0·84	1·76	2·96	3·17	2·85
Carbohydrate	11·5	14·08	14·26	15·31	20·10
Salts	0·5	0·64	1·06	1·13	1·40
	15·16	20·00	22·87	24·55	30·85

These quantities being calculated as dry food, must be doubled to give the actual amounts consumed in the moist state. It will be noted that the proteid constituents concerned in the building up of the tissues are capable of smaller variation in quantity than non-nitrogenous constituents, which are mainly concerned in the changes associated with muscle activity. It is estimated that an individual occupied in brain work requires the same food as one at rest. The proportion of proteid to carbohydrate is as 23 to 77—that is, nitrogenous food should constitute about one-fourth of the non-nitrogenous food. The chief variations which occur in the alimentation of different classes of society concern mainly the consumption of proteid to a greater or less extent as animal food, and involve also different amounts of animal food in the form of fat instead of carbohydrate of vegetable origin. It should be recalled that the proteid constituents of food may be entirely supplied either by meat or bread, the latter being cheaper but more bulky. In the same way non-nitrogenous constituents may be supplied either as fat or carbohydrate with the same distinction.

"If the lean of meat only were consumed, rather over six pounds would be needed to furnish the requisite amount of carbon, and there would be a very large surplus of inutilisable nitrogen, whilst if bread only were taken the amount necessary to supply the necessary amount of nitrogen would be rather more than four

pounds, and this contains nearly double the amount of carbon wanted" (Pavy).

The preponderance of fat over carbohydrate is in accord with the requirements of a cold climate, as in the habitual diet of the Eskimo, while a preponderance of carbohydrates over fat is better suited to life in a hot climate, as is seen in the usual rice diet of Hindoos, a due proportion of proteid material being necessary in either case to maintain the structure of the body. The modification in amount of food is perhaps best illustrated by the starvation diet adopted in what is known as Tufnell's treatment for aneurism, which consists of eight ounces each of fluid and solid, of which half is administered as the mid-day meal, and a quarter morning and evening. The actual articles employed are

4 oz. Meat.
4 „ Bread.
4 „ Milk.
4 „ Claret.

On the other hand, the treatment of chronic nervous diseases and pulmonary tuberculosis by over-feeding involves as much as four or five pounds of solid food daily, in addition to two pints of milk. The importance of permitting one or other of these classes of food to predominate is exemplified in the treatment of such diseases as diabetes, in which carbohydrates, on account of their easy conversion into sugar, must be entirely replaced by fat, while in defective conditions of the kidneys, in which the output of nitrogen is hindered, the nitrogenous substances of the diet must be correspondingly reduced.

A very important feature, apart from the nutritive value of particular foods, is the question of digestibility—that is to say, the rapidity and completeness with which solution is effected in the digestive tract.

From Penzoldt, Quoted by Gautier

Average Time necessary for the Stomach to remove the different Alimentary Materials which it digests to the Intestine.

	Quantity in grms.	Time in hours.
A. *Waters and Alimentary Drinks:*		
Pure or gaseous water	100–200	1 to 2
	300–500	2 „ 3
Infusion of weak tea	200	1 „ 2
Coffee	200	1 „ 2
Coffee with cream	200	2 „ 3
Pure cocoa	200	1 „ 2
Cocoa with milk	200	1 „ 2
Beer	200	1 „ 2
	300–500	2 „ 3
Light wine	200 cc.	1 „ 2
Ordinary wine	200 „	2 „ 3
Malaga wine	200 „	2 „ 3
Gravy soup	200 „	1 „ 2
B. *Flesh of Mammals or Birds:*		
Cooked beefsteak, hot or cold	100	3 „ 4
Roast beef	250	4 „ 5
Roast fillet of beef	100	3 „ 4
Raw beef (lean)	250	3 „ 4
The same boiled	250	3 „ 4
Raw ham	160	3 „ 4
Cooked ham	160	3 „ 4
Roast veal, hot or cold (lean)	100	3 „ 4
Smoked meat	100	4 „ 5
Smoked tongue	250	4 „ 5
Sausage of raw meat	100	2 „ 3
Roast hare	250	4 „ 5
Roast goose moderately fat	250	4 „ 5
Roast duck	250	4 „ 5
Roast partridge	230	3 „ 4
Boiled pigeon	230	3 „ 4
Roast pigeon.	195	3 „ 4
Boiled or roast chicken	250	3 „ 4
C. *Other dishes derived from Animals:*		
Sweetbread	250	2 „ 3
Boiled calf's foot	250	3 „ 4
Calf's brain	250	2 „ 3
Boiled milk	100–200	1 „ 3
	300–500	2 „ 3

	Quantity in grms.	Time in hours.
Soft-boiled eggs	100	1 to 2
Hard-boiled eggs or omelettes	100	2 „ 3
Gravy soup	200	1 „ 2
D. *Fish and Analogous Dishes:*		
Boiled carp	200	2 „ 3
Boiled pike	200	2 „ 3
Boiled haddock	200	2 „ 3
Fresh-boiled cod	200	2 „ 3
Lamprey with vinegar	200	3 „ 4
Boiled Rhine salmon	200	3 „ 4
Salted or smoked herring	200	4 „ 5
Salted caviare	72	3 „ 4
Raw oysters	72	2 „ 3
E. *Cooked Vegetables:*		
Steamed potatoes eaten with salt	150	2 „ 3
Mashed potatoes	150	2 „ 3
Potatoes with vegetables	150	3 „ 4
Boiled cauliflower	150	2 „ 3
Cauliflower cooked in salad	150	2 „ 3
Cooked asparagus	150	2 „ 3
Rice cooked in water	150	3 „ 4
Cooked turnips	150	3 „ 4
Boiled carrots	150	3 „ 4
Boiled spinach	150	3 „ 4
French beans	150	4 „ 5
Mashed peas	200	4 „ 5
Mashed lentils	150	4 „ 5
Green peas cooked in water	150	4 „ 5
F. *Raw Vegetables:*		
Cucumber salad	150	3 „ 4
Raw radish	150	3 „ 4
G. *Bread and Biscuit:*		
White bread, fresh or stale, dry or with tea	70	2 „ 2
	150	3 „ 4
Rye bread	150	3 „ 4
Albert biscuits	50	2 „ 3
	150	3 „ 4
H. *Fruits:*		
Apples	150	3 „ 4
Raw cherries	150	2 „ 3
Stewed cherries	150	2 „ 3

Diet in Childhood.—It will have been noticed in connection with the analysis of milk and egg that these foods of the young contain a greater proportion of proteid than is recommended in the diet for adults. The child shows greater activity in metabolism than the adult, consuming and breaking up greater quantities, especially of proteid, in proportion to weight. There is indeed a gradual diminution in the output of nitrogenous waste from early infancy to old age, ranging from 1·35 grms. urea per kilogramme at eighteen months to ·5 grm. at twenty-five years and onwards. Feeding in infancy and adolescence should be liberal. Unquestionably the best method of nourishing the newly born is by maternal suckling. This should be carried on systematically, at first every two hours, and then every three hours during the day, and twice during the night, the quantity of milk ingested increasing progressively from 80 grms. (about ℥ iij) at a time in the first month to 150 grms. (℥ vj) in the fourth. The duration of nursing must depend on the development of the infant and its capacity in the later months for taking and digesting other foods, and the ability of the mother to continue the supply. It may be pointed out here that the enormous mortality of children from diarrhœa during hot weather is closely associated with artificial feeding, and there would be a great security for infant life if suckling were continued through these periods. Failing this method, mares' or asses' milk, collected with strict antiseptic precautions, offers the closest approximation. If cow's milk is employed, as is most general, it should be mixed with half its volume either of water, sweetened with 5 per cent. of sugar, preferably lactose, or with a similar quantity of decoction of oatmeal or flour. Of this mixture one pint should be given daily, gradually increased to two pints at the third month, which corresponds to 595 calories. With

the appearance of the teeth after the sixth month, additions to the milk diet should consist of bread, flour, yolk of egg, biscuit and the gravy of meat. Towards the end of the first dentition, at about the second year, small quantities of finely minced meat or chicken, with various starchy materials as puddings and cooked fruit, should constitute the diet, avoiding condiments, seasonings, and smoked articles, thus gradually accustoming the child to ordinary adult food. From six to fifteen years the child should be supplied with nearly double the amount of proteid matter in proportion to his body weight as is required by the adult. Fats also ought to be proportionately abundant on account of the greater loss of heat which occurs. The young have a natural craving for sugar, which may be indulged in moderation, as this is a valuable nutrient. Sweets are best digested about an hour after meals; when given before they disturb digestion by provoking secretion of mucus. Growth and development require also an ample supply of mineral elements, such as the salts of potash, lime, and phosphorus, these being contained in the cereals, fish, and milk. From fifteen years onwards, which is perhaps the most active period of muscular exertion, while the excretory organs are in full activity, full allowances of meat are required and are easily disposed of. From the time when growth is completed there should be a gradual diminution in the amount of food, particularly as regards the proteid constituents and in accordance with the mode of life of the individual, bearing in mind the statement already made, that the output of urea per day per kilogramme of body weight gradually descends from 1·35 grms. at eighteen months to ·5 at twenty-five years.

In old age, the lessened activity of chemical changes and of the digestive and excretory functions demands a lessened amount of food, especially in relation to proteid.

The question of digestibility is of special importance, and one must also take into account defective powers of mastication. The most suitable foods are broths, grated meats, eggs, such vegetables as peas, beans, and lentils, besides an abundance of carbohydrates, and in most cases stimulants, but where there is evidence of high arterial tension stimulants and nitrogenous food should only be given in very small quantities.

Condiments may be regarded comprehensively as local stimulants affecting appetite and digestion, arresting fermentation and promoting secretion and peristalsis throughout the digestive tract, when taken in small quantities. Such are mustard, pepper, vinegar, sauces, pickles, the various spices, savouries and such easily absorbed articles as soup and oysters; one or other of which condiments usually constitutes part of the food either separately or in the preparation of dishes. With these may be considered alcoholic beverages in small amounts, such as a glass or two of light wine and the smaller glass of brandy or liqueur with coffee at the termination of the meal, as digestive aids.

The two features which are concerned in retardation of digestion are the bulk of fluid and the quantity of active principle, whether aromatic or alcoholic, when taken in excess.

In the case of some wines, however, the retarding influence on digestion appears to be out of proportion to the amount of alcohol present, which is scarcely operative till it amounts to 10 per cent. of the gastric contents. Such are port, sherry, marsala, and madeira, usually regarded as heavy wines, more appropriate at dessert than to accompany the usual courses.

On the other hand hock, moselle, claret, champagne, and perhaps burgundy with the white wines of corresponding districts, when taken in moderate quantity, exert no deterring influence on the process of digestion

and by slightly stimulating the circulation counteract the sedative effect of that process on the brain.

The case of malt liquors is somewhat different, since both by the bulk usually consumed and the presence of saccharine, with other constituents besides alcohol, digestion is appreciably delayed and fermentation rather encouraged.

Soup, as a preliminary to a meal, should be taken in very small quantity: "three spoonfuls" was the amount permitted by the late Sir Andrew Clark to an individual in difficulties with his digestion. Aerated fluids whether as sparkling wine or as mineral waters either alone or with small quantities of spirit, tend to assist digestion by slightly stimulating the mucous membrane of the stomach and aiding in the admixture of its contents.

Error in these matters lies rather in the habit of satisfying thirst at the commencement of a meal by prematurely diluting the stomach contents with half a pint or more of fluid, or by over-stimulating and thus inhibiting the function of the mucous membrane by such articles as cayenne pepper, curry, or mulligatawny soup in quantity, or by drinking strongly alcoholic fluids. The practice, for instance, of drinking several glasses of the various forms of "cocktail" or gin and bitters before a meal is particularly pernicious in this respect.

At the end of a meal the drinking of moderate quantities of fluid is not objectionable, since the food is already saturated with the digestive juices and partially dissolved.

While taking food the object aimed at is to supply all necessary moisture through the medium of the saliva and gastric juice and not by drinking fluid, which should be taken an hour or more beforehand or be reserved for the end of the repast.

Alcohol as a beverage must be regarded rather as making life temporarily agreeable than as being

actually beneficial to the organism. In the average state of health it cannot be regarded as necessary. There are conditions, however, somewhat short of perfect health, such as old age, periods of over-work, and the state of fatigue, in which its beneficial effects are very definite, perhaps to a great extent through its influence on digestion. Locally alcohol is an irritant when evaporation is prevented, producing in the mouth or stomach a sensation of burning when introduced as neat spirit, more particularly in the case of an empty stomach. This may account for the chronic pharyngitis and gastric catarrh prevalent in spirit-drinkers, and will account also, through stimulation of the salivary glands, for the increased salivation which they experience. In small quantities, however, properly diluted, alcohol is an adjunct to digestion. Up to a proportion of 2 per cent. of the stomach contents it increases peristalsis and secretion of gastric juice, improves the appetite, and aids absorption of some ingredients of the food. In increased quantity, up to 5 or 10 per cent. of the stomach contents, the digestion appears to be somewhat retarded, and 20 per cent. admixture arrests it.

The greater part of the alcohol taken within moderate limits is directly and rapidly absorbed into the circulation. This rapidity of absorption is sometimes taken advantage of in accelerating the action of certain narcotic drugs, such as paraldehyde, chloral, and sulphonal with its congeners, when employed as soporifics, and is often administered with them for this purpose.

The rapid absorption of alcohol by the stomach prevents any considerable quantity passing on with the chyme into the duodenum, but it is estimated that a 2 to 3 per cent. admixture is sufficient to interfere with pancreatic digestion.

One other effect of local irritant action of alcohol, when taken in excess, appears to be reflex inhibition of

the heart's action through the medium of the vagus nerves, which may account for sudden death after swallowing a large quantity of neat spirit, as much as a pint having been taken at a time, generally for a wager.

The principal effect of alcohol is that of a stimulant to the circulation, its first effect being to accelerate and increase the force of the heart's beat, somewhat raising the tension of the circulation with subsequent dilatation of peripheral vessels, especially in the skin, associated with perspiration. This stimulating effect cannot be indefinitely maintained, as reaction necessarily occurs, consequently the beneficial effects of such stimulation can hardly be looked for in habitual drunkards. It is on this account that the continued exhibition of alcohol is to be discouraged in cases of chronic disease of the heart, and for the most part in acute forms of illness the administration of alcohol should not be commenced before the real necessity for its use arises. In febrile diseases and others in which the frequency of the heart beat is increased, the beneficial effect of alcohol is seen in the reduction in the number of beats, while in cases of heart failure, with feebleness and infrequency, the effect of alcohol, when satisfactory, tends to increase the rapidity and force of the heart's action.

Acting in these contrary directions it may be said that alcohol proves beneficial when its effect is to bring the heart's action towards the normal. In the case of fever, besides such an effect on the cardiac beat, sustaining and steadying it, alcohol tends to reduce the temperature by dilating the superficial vessels, moistening the skin, and so encouraging loss by radiation and evaporation. While it reduces cell activity and with it heat production, intervening between the ordinary food supply and the demands of the tissues, alcohol appears, in being itself oxidised, to spare both ordinary nutriment and the

tissues themselves, diminishing the waste which is a constant accompaniment of continued fever. Thus, in sparing fat and carbohydrates and lessening cell metabolism it acts practically as a food.

Malt Liquors.—Malt liquors are obtained by the fermentation of carbohydrates, the standard source being malted grain, and contain, as also do wines, besides alcohol, a considerable quantity of saccharine, organic and mineral matter. The amount of alcohol is low, usually not more than 4 per cent., so that they are almost as much a food as a stimulant.

Of the various forms, lager beer is the weakest in alcohol, is most aerated, and contains a considerable proportion of unchanged carbohydrate material. India pale ale, which, though light, is fully fermented, contains more alcohol, and very little carbohydrate matter. These are considered the lighter forms of ale. Ordinary draught or bottled ale is usually richer both in alcohol and solid matter than the preceding; stout and porter, much heavier beverages, contain half as much again both of alcohol and extracts. They are also more acid and more difficult of digestion, but are excellent soporifics. It is chiefly owing to the saccharine and other organic matters in the different forms of malt liquors that these are unsuitable to those predisposed to gout, arthritis, and arterio-sclerosis, and indeed to all those of sedentary habits who are liable to what are regarded as disturbances of the liver. Malt liquors are nourishing, and form excellent tonics in convalescence, and are well suited in health to those living a physically active life. As has been already suggested, they are the best form of alcoholic drink during the early years of adult life. Later on, when dissociated from physical activity, they tend to produce obesity or gout, and are unsuitable in diabetes. The bulk of fluid consumed in large potations may lead to distension of the stomach, and from over-fulness of the

circulation to dilatation and hypertrophy, followed by failure of the heart.

Cider and **Perry** hold an intermediate position between malt liquors and light wines. They contain usually less than 4 per cent. of alcohol, bottled cider being rather weaker in this respect than draught, and retaining more sugar. There is usually moderate acidity due to malic and citric acids. These have apparently rather a beneficial influence in rheumatism and gout, being solvents of uric acid; and a fairly dry sample of this beverage may be drunk by patients prone to these diseases, much in the same way as hock, but the sweet aerated bottled ciders are not so suitable.

Wines.—Wines are obtained by fermenting the juice of the grape, resembling malt liquors in that they contain a considerable amount of dissolved organic matter, in addition to a percentage of alcohol, with the addition of particular ethers.

Natural wines, in which the grape juice is fully fermented, contain a relatively small amount of alcohol, less than 12 per cent. by weight, and practically no sugar. They are light in character, whether red or white, mature early, are not sweet, and supply the best beverage with meals. Such are hock and moselle, and the red and white wines of Burgundy and Bordeaux. With these may be included the wines of Hungary, Italy, Australia, and California. The different qualities of wine depend both on the yeast and the grape employed in their manufacture.

Fortified wines contain alcohol to nearly double the amount present in the natural, this being provided by added spirit, which limits the extent of fermentation, so that these wines contain in addition a high proportion of sugar. Such are port, sherry, marsala, madeira, and the Greek wines, which on account of the alcohol and sugar they contain, as in the case of malt liquors, are *unsuitable* for gouty and arthritic subjects.

The proportion of alcohol and ethers increases while the wine is in the vats and the ethers still further after the wine is bottled, with slight sacrifice of alcohol. These changes cause the wines to mellow with time. They do not, however, continue indefinitely, but the greater their strength in alcohol the longer wines take to mature and the longer they may be kept to advantage.

It will be inferred from the foregoing observations that the natural wines, including with them champagne, are best fitted to accompany a meal, fortified wines being suited for occasional use and dessert, in much smaller quantities.

Spirits as usually sold contain about 43 per cent. of alcohol, rum rather more, and gin a little less. Patent spirit, which forms a large proportion of that usually obtainable, is freer from by-products than pot-still spirit, and does not therefore improve to any perceptible degree by keeping. Rum, which is fermented molasses, or the juice of the sugar-cane, owes its flavour chiefly to ethyl butyrate and its colour to burnt sugar. It contains a larger amount of solid matter than any of the other spirits, besides being as a rule stronger in alcohol. It is seldom used medicinally, except as a mixture of rum and milk as a morning draught, particularly in cases of consumption. Whisky, which may be regarded as distilled beer apart from the hops, is about half and half alcohol and water, its colour being obtained from being kept in sherry casks. It is slightly laxative, contains rather more alcohol than brandy, and is considerably cheaper and easier to procure than that spirit, and is perhaps, therefore, preferable for general use.

Brandy, which is distilled wine, derives its colour, and perhaps some degree of astringency, from the wood of the oak casks in which it is kept. Both brandy and whisky, other than patent spirits, are mellowed by time through development of ethers and aldehydes with a

slight reduction in the percentage of alcohol. The best brandies are derived from Cognac and Spain.

For cases with severe nervous and circulatory depression old liqueur brandy is the very best stimulant, and it should be reserved for such infrequent cases, being expensive and difficult to procure. Owing to the small amount of tannin present, brandy is regarded as somewhat constipating, and is occasionally employed as a household remedy in diarrhœa.

Gin is distilled from fermented rye and malt liquor, flavoured with juniper. Being kept in cisterns lined with white tiles it remains colourless. The best is made in Schiedam, Holland. Gin is a somewhat weaker spirit than the others, containing 35 per cent. of alcohol, and very little else than this. It may therefore be looked upon as perhaps the purest spirit, quite free from sugar, and on this account and the presence of oil of juniper it is often selected as a stimulant in cases where the kidneys are defective and a diuretic action is required. Another advantage of gin is that it is relatively inexpensive. There being little in it to undergo secondary changes, it is practically as good when first made as when kept, and this materially diminishes its cost in comparison with other spirits.

Where there is great nervous depression associated with delirium, dry tongue, and tremors, alcohol is of striking benefit. Its physiological effects on the circulation are experienced in the sense of warmth due to flushing of the skin, and in mental activity, associated with dilatation of the cerebral vessels ; but the fallaciousness of these impressions is shown in the one case by the increased loss or diminished production of heat, often illustrated in deaths from cold and exposure after excess of alcohol, and in the other by the reactionary depression and really defective ideas due to cell paralysis. It may be inferred from *this that* alcohol is not a true brain stimulant, and that

while it increases vulnerability to cold when taken during or before exposure, it may be of service after chill by assisting the activity of the circulation and the more general distribution of the blood which has been retained internally by congestion. Long-continued use of alcohol produces vascular paralysis, and accounts for the bloated look and purple complexion of the chronic drunkard. The injury to the organism wrought by excess of alcohol, besides the local catarrh already mentioned, apparently depends on the passage of a proportion of the unchanged drug through the system, some 10 per cent. escaping oxidation. This free alcohol acts as an irritant in the circulation, causing fibrosis in the liver, blood vessels, brain, and kidneys. Such effects are most marked when a large quantity is taken at once, especially when undiluted. The limit of absolute alcohol that can be disposed of in the system at one time is from 1 to 1½ fluid ounces (which would be represented by some 2 ounces of spirit, 5 ounces of strong wine, such as port or sherry, ½ pint of light wine or champagne, and about 1 pint of beer). The danger to be avoided therefore is flooding the circulation with an amount of alcohol which it is beyond the power of the tissue cells to oxidise. Other effects of excess of alcohol, short of actual inebriety, are fatty degeneration of tissues and obesity. Idiosyncrasy has much influence, and an open-air life with constant activity does much to neutralise the effects of alcohol, and an amount which would exceed the capacity of the organism to deal with in one dose may be tolerated, if sufficiently diluted, or taken in subdivided quantities in the course of the day.

As a beverage alcohol is less noxious when taken with meals, provided the quantity is below that which would unfavourably dilute the gastric contents. For the most part, beer is best suited to youth, wine to middle age, and spirits to the old.

In connection with disease, spirits are usually employed in acute phases, whether as a "sparing" aliment in fevers or as a direct stimulant to the circulation in cases of heart failure. The combination of tincture of digitalis or strophanthus in the proportion of a drachm to three or six ounces of spirits in the course of twenty-four hours supplies an efficient heart tonic.

Stimulants should of course be given with the same strict dosage and regularity as medicine, and it should not be forgotten that when really required they are most necessary during the night. It is sometimes advisable rather to prescribe alcohol in such a form as the following:

Tinct. Aurantii	℥ij
Sp. Ætheris	℥ss
Sp. Am. Aromat.	℥ss
T. Nucis Vomicæ	♏ x
Aq. Chloroformi	ad ℥j

This is a powerful diffusible stimulant which would not be recognised in a prescription as alcohol.

Malt liquors and the fortified wines are chiefly used in convalescence from acute disease, sherry being revived at the present time, though port has long held first place. Champagne is of special service in rousing patients who are particularly exhausted or when there is frequent vomiting and nausea, and has been much used in influenza. It is speedy though transient in its effects, and when taken with meals is of great value in assisting appetite.

Port has for a long time been regarded as of particular value in septic states both general and local, being employed in septic infection and intoxication and especially in cases of septic sore throat.

The natural wines with cider and perry are wholesome general beverages in health, as are also malt liquors for those leading an active life, but in arthritis and those suffering with arterial and renal degeneration the lightest white wines are alone admissible.

The immediate effect of **nerve stimulants,** without actually supplying nutriment, is to excite the individual to exert his powers of resistance and activity, apparently by enabling certain reserves of energy and energy-supplying material to be drawn upon through the agency of the nervous system. Such stimulants are excitants which do not take the place of food nor diminish the expenditure of nutritive material in the body, consequently they exert their influence in bringing about activity at the expense of the materials already existing in the body. Excluding alcohol, the nerve stimulants contain alkaloids of the puric family allied to xanthin and uric acid. These are coffee, tea, maté, cocoa, kola, and guarana, though there are other substances which have a share in the stimulating effect besides the recognised alkaloid in each individual case. It has been stated by Le Blond that caffeine increases the central and diminishes the peripheral temperature of animals. It stimulates the action of the heart when given in moderate doses, causing arterial pressure to rise both by this and by contraction of the peripheral vessels. It increases the activity of the nervous centres and the excitability of the muscles, causing the sensation of fatigue to disappear; but its chief effect is in inducing a greater amount of brain or mechanical work to be done upon the same amount of food.

Coffee helps the digestion of milk and is less liable to interfere with that of proteid matters such as meat than is tea. Its effects on the nerve centres are valuable in taking the place of alcohol, and even in curing chronic alcoholism. When taken in excess or by individuals unaccustomed to its effects, coffee is liable to produce nervous excitement and especially insomnia; and in great excess the condition produced is comparable with advanced alcoholism. It should be forbidden in the arthritic and uratic diatheses, to those suffering from

gastrodynia and dyspepsia, or Bright's disease. As an antidote it is commonly used in opium and belladonna poisoning, as well as in that by alcohol.

Tea is no more of a food than coffee, but it has a similar power of exciting functional activity of the nervous and muscular systems so that a greater amount of work can be done under its influence with the same amount of food, and without the usual sense of effort. It also excites the circulation, the digestive functions and the kidneys, by its alkaloids. The use of tea should be restricted in nervous subjects, and in those suffering from gastric disturbances. Owing to its exciting the activity of the skin, it is also unsuitable for those suffering from diseases such as eczema. Both tea and coffee, on account of their being allied to uric acid, are considered inadmissible in the subjects of chronic gout. An important point to remember in the preparation of tea is that the amount of tannin dissolved increases with the time occupied in infusing. Five minutes or less should dissolve the thein and about one-third of the tannin; prolonged infusion serves only to extract further quantities of tannin, colouring matters and a bitter principle. For the most part it is the tannin which disturbs the stomach and interferes with the digestion of proteids. To make good tea cold water should be freshly boiled, and the teapot completely filled. The presence of lime salts interferes to some extent with the extraction of its constituents, and hard water should be softened with a little bicarbonate of soda. On the other hand too soft a water extracts the bitter principle from the leaf. The use of water which has been previously boiled or long heated, owing to the absence of dissolved air, gives a flat taste to the beverage. The importance of heating the teapot and employing actually boiling water depends on the fact that some of the volatile constituents of the *leaf* which supply the aroma can only be properly ex-

tracted at the boiling point. The water should not remain in contact with the leaves for more than five minutes, or the infusion will become bitter and astringent.

The addition of milk, by forming an insoluble compound with the tannin, appears to obviate some of the ill-effects of tea on the digestive processes, but even then tea is an unsuitable beverage in association with meat meals. Irritating effects on the stomach are more likely to occur when this is otherwise empty, and is an objection to the early morning cup taken alone. As an habitual beverage coffee appears to exert a relaxing effect on the bowels and tea the opposite. The ill-effects of both tea and coffee show themselves in a disturbance of digestion and over-excitability of the nervous system. Coffee is often considered "bilious" and tea as productive of dyspepsia. These effects usually result from excess, or depend on personal idiosyncrasy.

Chocolate.—The third substance used as a beverage differs from the other two in that it contains more nutriment and less constituents of a stimulating character. Theobromine, its peculiar alkaloid, is homonymous with caffeine, and has very similar effects. Its richness in albuminoids and fatty matters, with the large amount of sugar which is added in manufacture, make up a food of great nutritive value. Owing to the presence of oxalates in considerable quantity, and also the large proportion of sugar, chocolate is unsuited for those suffering from uric acid or arthritic diatheses, rheumatic or gouty subjects, and those tending to obesity. Chocolate, being both a stimulant and a food, produces a more lasting effect than tea or coffee, with less excitement, and consequently forms a satisfactory drink before going to bed and in insomnia from hunger in the course of the night.

Of the other stimulants mentioned, **Kola** contains a sustaining substance allied to thein, and is used as an

actual nerve stimulant, forming a factor in Vi-cocoa. The kola bean is largely employed by negroes in Central and Western Africa as a sustaining food, enabling them to resist the fatigue of long journeys for days together with no other substance than water.

Maté, an infusion of which is extensively employed in South America, has very much the qualities of tea, the stimulating properties being due to nearly 2 per cent. of thein and 20 per cent. of metatannic acid. The infusion is slightly bitter, aromatic, and astringent, and is a neuro-muscular excitant.

Guarana, which has been mentioned as a remedy in headache, is used in Brazil infused with boiling water much in the same way as tea, to aid in resisting hunger and fatigue during journeys. Tannate of caffeine amounting to 4 per cent. is the chief active principle.

SPECIAL DIETS.

Vegetarian Diet.—It may be inferred from what has been already written that the nitrogenous as well as the carbohydrate principles of food may be entirely supplied by the vegetable kingdom. This appears to be particularly suitable in hot climates, and prevails largely in India and Egypt as well as in many parts of Russia and Norway, without any sacrifice of energy, though, as in the case of herbivorous animals, such a diet appears more suited to steady continuous strain than to concentrated effort. Its advantages are largely those of temperance, tendency to arthritic or gouty diatheses being diminished, and the general tenor of life being rendered more equable, without loss of intellectual acuteness. It also has the advantage of being inexpensive.

On the other hand, the bulk of food required, and *its constitution*, puts a greater strain on digestion, and

is ill suited to meet the lowered vitality incident to faulty heredity, illness, or advanced age. The amount of vegetable, as compared with animal food, in regard to proteid, averages in different substances from two to ten times the bulk, so that in order to obtain sufficient alimentation from vegetable sources alone the vegetarian necessarily encumbers his system as well as his stomach and alimentary canal with an excessive volume of material containing much superabundant and useless matter. As compared with herbivorous animals the human organism is neither suited to deal with such bulk, nor is it able to digest cellulose, which forms a considerable proportion of vegetable matter. Such a form of diet, however, is rendered possible by the addition of such animal foods as butter, milk, and eggs, and perhaps fish. The adoption of vegetarian diet results in an increase in fæcal residues which stimulate the activity of the colon and so diminishes constipation, tends to render the urine more alkaline than would be the case with animal food, and further, by diminishing the supply of nitrogen, relieves the liver and kidneys from the elaboration and removal of nitrogenous products. A largely vegetable diet, on the other hand, tends to the production of flatulence. It increases the alkalinity of the blood, accelerates oxidation, and diminishes nitrogenous losses and the development of toxins. It is therefore specially suited for cases of renal disease, and it exerts a favourable influence on many diseases of the skin, tendency to arterio-sclerosis, arthritis and congestion of internal organs particularly when associated with a gouty diathesis.

Milk Diet.—From the analysis of milk previously cited, it will be seen that under no circumstances can this offer a permanently complete form of nourishment to an adult, the quantity of albuminoids being too great in proportion to carbohydrates. The addition of bread, however, produces a complete diet on which an individual

might live indefinitely. An adequate milk diet for an invalid may be considered to include 3 pints of milk, with 10 ounces of bread, and about 1½ ounces of rice or tapioca as pudding. Such a diet is suitable to conditions of fever in which a relatively large proportion of liquid is required, and where the digestive capacity is reduced in a serious degree.

From the point of view of elimination of nitrogenous products, such a diet is commonly prescribed in renal diseases, though it may be necessary to reduce the amount of fluid while there is increasing œdema. An important point also to be attended to is the reduction of mineral matters, particularly common salt, which tends to increase the transudation of albumen.

Owing to the constipating effects of a milk diet, the addition of barley water or a decoction of oatmeal is usually necessary. It is important with a diet of milk that this should only be taken in very small draughts at a time, and rather slowly, while the admixture of lime-water in the proportion of an ounce to a pint diminishes the tendency to form hard curd. It may be mentioned that many persons with whom milk disagrees in health are able to take it in illness owing to lessened acid secretion in the stomach.

Meat Diet.—This supplies the greatest amount of energy at short notice and in the smallest bulk, and is suited to healthy individuals leading an active life in which great and sudden demands may be made on the energy and courage. In the absence of fat and carbohydrates in the diet these matters are removed from the body, such diet being therefore suitable for the reduction of obesity. An animal diet, with due proportion of fat, is of necessity employed in cases of diabetes to avoid the development of sugar.

The chief disadvantage of a meat diet is in the production of superabundant nitrogenous waste, especially

uric acid; and the amount of work thrown on the liver results in dyspepsia, skin eruptions, and constipation, from the relatively small bulk and tenacity of the fæces. It is one of the most active predisposing causes of arterio-sclerosis.

In **Obesity** it is necessary to reduce as far as possible fats, saccharine, and starchy matters, replacing them by some increase of meat and salads, also raw fruits, the omission of condiments and spices tending to diminish appetite. Such a diet would consist of:

Gautier

Breakfast, 8 o'clock . . .	1 egg. ½ oz. bread. ¾ oz. meat.
10 o'clock . .	2 eggs. ½ oz. bread. 6 oz. wine and water.
12 o'clock . .	½ lb. lean meat. 1 oz. bread. 5 oz. green vegetables with a similar quantity of wine and water.
4 o'clock . . .	Tea without sugar.
7 o'clock . . .	A similar meal to that at 12.

This diet supplies 1,290 calories per day, rather more than half that actually expended in a state of relative repose, the remaining 800 or 900 calories being compulsorily borrowed from the combustion of stored-up fats, loss of weight being at the rate of nearly 1 lb. a day.

Alcoholic beverages in any quantity must be excluded, but there is no need greatly to reduce the amount of fluid. Indeed, hot water appears to have a special influence in reducing fat. Skimmed milk may be allowed, as the fatty matters have been largely removed.

The cure of obesity may be assisted by moderate exercise, warm drinks, and light purgatives, as in the régime adopted at Marienbad. Although the use of

thyroglandin reduces the weight of the body, by producing cardiac disturbance, and increasing nitrogenous waste, it is a less safe and satisfactory method than that by diet alone. Here may be appended an account of the purely nitrogenous diet described by Dr. Salisbury.

In the first stage the diet is restricted practically to meat and hot water.

The muscle pulp of beef is most recommended, and this made into cakes is broiled and then seasoned with butter, pepper, and salt. The use of certain sauces, of mustard, horse-radish, or lemon juice is permitted. A little celery as a relish is allowed.

This constitutes the meal—there may be an occasional change to broiled mutton—and it is repeated three times daily.

Nothing is drunk at the meal, but at about one and a half or sometimes two hours before the next meal half a pint to a pint of hot water at a temperature of from 110° to 150° Fahr. (*i.e.* at about the temperature of one's hot tea or coffee) is sipped—fifteen to thirty minutes being taken over the drinking of the water. Should the water nauseate, Dr. Salisbury recommends that a little salt should be sprinkled in, or a small quantity of clear tea or coffee, or half a teaspoonful of aromatic spirits of ammonia. He gives as the best times for the hot water 6 a.m., 11 a.m., 4 p.m., and 9 p.m. before retiring. The duration of the treatment will depend very much upon the nature of the trouble, and upon the mode of reaction to the diet. The hot-water part is recommended to be continued for months or even for years. The exclusive meat diet—half a pound to a pound or even more is taken at each meal—may be continued for some two to six weeks, and then gradually the choice of vegetables may be increased and some thoroughly cooked bread foods, such as baked chip bread, thin dry toast, rice, etc., introduced. Before this, or along with it, it will have

been allowable to extend the scale of meats as follows: broiled mutton and lamb, broiled game, broiled chicken, broiled codfish, broiled and baked fish free from fat, a soft-boiled egg, etc. Subsequently, health being restored, it is recommended to keep the starchy foods well in the background, the albuminate being the most prominent. Resting before and after the meal is advocated.

Directions for cooking the beef cakes (according to Dr. Salisbury's plan):

"Take four ounces of the beef pulp, which has been nicely minced, as before directed, and freed from all connective tissue and fat, etc.; season with black pepper and salt, but add no liquid. With two forks form it nicely and quickly into round flat cakes from a half to one inch thick, and broil them slowly and moderately well, over a clear but not a fierce fire, turning the griller every minute. They will take from six to eight minutes. If pressed hard and tight in the making, they are livery, not nice, and very indigestible. A small piece of fresh butter may be put on each cake when done; serve on a *piping hot* plate."

We may remember that Dr. Salisbury allows certain sauces: Worcester or Halford's, also mustard, horse-radish, lemon juice—a selection from these.

Mince.—A thick steak from the top of the round, or prepared ox heart quite fresh, with all skin and fat removed, is finely minced. The pulp should be put in the saucepan with salt and black pepper, and cold water or well skimmed gravy in the proportion of a full dessert-spoonful to each ounce of the pulp. (If the meat is specially dry, add a little more liquid.) Beat it all well together to a thick cream.

The saucepan must now be put on a cool part of the stove or range, and the pulp warmed through very gradually, and very slowly cooked, being briskly stirred and beaten up with a wooden spoon the whole time.

It should never get too hot to the touch while cooking (temperature about 115° Fahr.). If gradually and gently cooked thus, it takes from twenty to thirty minutes according to quantity, and should be turned out at once, when done, into a hot bowl and covered. If properly cooked, it is delicious, like a thick smooth cream.

Arthritis, Gout, Uric and Oxalic Gravel.—Though the subject of these maladies does not always eat in excess of others, it is certain that many exceed the limit of strict necessity, and the power which they have of consuming completely the food they take. Organic hyperacidity is the rule in arthritics, necessitating alkalinity of the diet. This requires restriction in all acid dishes except such organic acids as vinegar, lemon juice, and fruits. A meat diet, since it tends to the development of organic acids of nitrogenous constitution, must be suppressed or reduced in amount. Neither fortified wines, liqueurs, malt liquors, coffee, nor chocolate are admissible in such cases. The diet must be scanty, including a little bread and carbohydrates (although potatoes may be taken), still less meat, and few fatty bodies which impede nitrogenous metabolism, but in place of them a great deal of green vegetables and ripe fruits.

An indoor life is as far as possible to be discouraged.

As regards meat, the flesh of young animals and the gelatinous parts are particularly to be avoided, as well as smoked meats, and such as are rich in nuclein, as sweetbreads, brains, and eggs. Such vegetables as spinach, sorrel, and rhubarb, which contain much oxalic acid, should be eschewed. Milk is the best nutrient, supplying the place of meat on the nitrogenous side, and a relative excess of fluid, which is favourable.

With regard to beverages, pure water in abundance excites oxidation, and holds in solution uric acid, but most mineral waters answer the purpose, especially the

alkaline and laxative varieties. Light, non-acid wines, fruit juices, draught cider, lager beer, and weak tea are admissible.

At Carlsbad the diet prescribed for gouty patients is as follows:

Breakfast	Weak tea with cream. Biscuits, 2 to 4 oz. Butter, ½ oz. 2 soft-boiled eggs.
Midday Dinner	Soup, either clear or with pearl barley or rice, 1 oz. Fish, 3½ oz., with melted butter and lemon juice. Potatoes, 2 oz. Roast meat, 3½ oz. Cheese, 1 oz. Stewed fruit, 3½ oz. Bread, 5 oz.
Supper	Soup, milk or weak tea. Biscuits. Lean bacon or 1 or 2 eggs.

With dinner and supper pure or mineral water, with half a pint of light claret or two tablespoonfuls of whisky, is allowed.

Diabetes.—In this disease there is excessive loss of water, sugar, and nitrogenous bodies, which have to be limited and made good as far as possible by modifications in the food taken. These consist in (1) eliminating as far as possible every article of diet which may furnish glucose, and (2) meeting the nitrogenous losses by an increased amount of animal food. Plenty of fluid must be given, a considerable amount of meat, while the carbohydrates are replaced by green vegetables and fats in various forms. Fruits, containing as they do starch and sugar, though in small proportion, may only be tolerated in small quantities. Objection does not extend to such as are not sweet, as tomatoes, olives, and hard nuts

such as almonds, walnuts, filberts, etc. Such starchy fruits as bananas and chestnuts, and very sweet ones such as grapes and cherries, should be forbidden. The general rule is to avoid the roots and fruits and only to eat the intermediate stalks and leaves, remembering that white stalks contain some starch, as does also the head of cauliflower. Celery, seakale, and asparagus are permissible except in a very severe dietary—as are also mushrooms. French beans freed from seeds may also be eaten without inducing glycosuria. Green gooseberries and rhubarb stewed and sweetened with saccharin may be taken, and also tomatoes, cucumbers, and olives. The greatest difficulty is in finding a substitute for bread. Perhaps the best is protein or casoid made from milk, though many others are offered, such as soya, almond meal, and gluten.

As it is not always absolutely necessary, or indeed possible, to entirely exclude carbohydrates, Jerusalem artichokes may be permitted and potatoes may sometimes be employed in place of bread, containing as they do about half as much starch. Alcohol, particularly in the form of spirits and unsweetened wines, may be recommended.

An illustrative diet is the following :

Beef or mutton, about 2 lb.
Diabetic bread, 3 oz.
Green vegetables, 9 oz.
Potatoes, 2 oz.
Fish, 5 oz.
Cream, 3 oz.
Butter (fats), 3 oz.
Cheese, 2 oz.
Wine, ½ pint,

such a diet representing about 3,000 calories.

Nephritis and insufficiency of the kidneys, which interfere with the removal of nitrogenous waste, while permitting the transudation of albumen, require

special consideration in regard to food. A milk diet is the most suitable, skimmed being better supported than pure milk in the worst cases, to which may be added carbohydrates, vegetables and fruits, with the exception of asparagus and cabbage. In less severe cases, eggs and even meat in small quantities may be employed, pork being perhaps best. Elimination of salt from the diet appears to lessen the transudation of albumen, and to reduce the œdema. All spices, smoked meats, and alcoholic liquors should be forbidden. A strict diet would include

5 pints of milk,
6 oz. of bread,
3 oz. biscuit,
1½ oz. cheese,

corresponding with about 2,500 calories per day.

Perhaps the most frequently occurring cases in which diet has to be carefully arranged are those in which ordinary food gives rise to irritation with pain, vomiting, and diarrhœa owing to a disordered state of the mucous membrane in the stomach or intestines, possibly attended by actual ulceration.

The object to be kept in view under such circumstances is maintenance of nutrition, perhaps only approximate, for a time by the administration of bland, easily digestible, and highly nutritious food in small bulk, while carefully excluding all irritants such as condiments, alcohol, and insoluble matters.

The general principle being the same, details in mode of administration necessarily vary according to the site of disease.

When it is necessary to avoid acid secretion or peristalsis in the stomach, or when for other reasons food cannot be introduced into the digestive tract, nutrition may, for a time, be maintained and thirst alleviated by trans- or hypodermic alimentation.

thyroglandin reduces the weight of the body, by producing cardiac disturbance, and increasing nitrogenous waste, it is a less safe and satisfactory method than that by diet alone. Here may be appended an account of the purely nitrogenous diet described by Dr. Salisbury.

In the first stage the diet is restricted practically to meat and hot water.

The muscle pulp of beef is most recommended, and this made into cakes is broiled and then seasoned with butter, pepper, and salt. The use of certain sauces, of mustard, horse-radish, or lemon juice is permitted. A little celery as a relish is allowed.

This constitutes the meal—there may be an occasional change to broiled mutton—and it is repeated three times daily.

Nothing is drunk at the meal, but at about one and a half or sometimes two hours before the next meal half a pint to a pint of hot water at a temperature of from 110° to 150° Fahr. (*i.e.* at about the temperature of one's hot tea or coffee) is sipped—fifteen to thirty minutes being taken over the drinking of the water. Should the water nauseate, Dr. Salisbury recommends that a little salt should be sprinkled in, or a small quantity of clear tea or coffee, or half a teaspoonful of aromatic spirits of ammonia. He gives as the best times for the hot water 6 a.m., 11 a.m., 4 p.m., and 9 p.m. before retiring. The duration of the treatment will depend very much upon the nature of the trouble, and upon the mode of reaction to the diet. The hot-water part is recommended to be continued for months or even for years. The exclusive meat diet—half a pound to a pound or even more is taken at each meal—may be continued for some two to six weeks, and then gradually the choice of vegetables may be increased and some thoroughly cooked bread foods, such as baked chip bread, thin dry toast, rice, etc., introduced. Before this, or along with it, it will have

been allowable to extend the scale of meats as follows: broiled mutton and lamb, broiled game, broiled chicken, broiled codfish, broiled and baked fish free from fat, a soft-boiled egg, etc. Subsequently, health being restored, it is recommended to keep the starchy foods well in the background, the albuminate being the most prominent. Resting before and after the meal is advocated.

Directions for cooking the beef cakes (according to Dr. Salisbury's plan):

"Take four ounces of the beef pulp, which has been nicely minced, as before directed, and freed from all connective tissue and fat, etc.; season with black pepper and salt, but add no liquid. With two forks form it nicely and quickly into round flat cakes from a half to one inch thick, and broil them slowly and moderately well, over a clear but not a fierce fire, turning the griller every minute. They will take from six to eight minutes. If pressed hard and tight in the making, they are livery, not nice, and very indigestible. A small piece of fresh butter may be put on each cake when done; serve on a *piping hot* plate."

We may remember that Dr. Salisbury allows certain sauces: Worcester or Halford's, also mustard, horse-radish, lemon juice—a selection from these.

Mince.—A thick steak from the top of the round, or prepared ox heart quite fresh, with all skin and fat removed, is finely minced. The pulp should be put in the saucepan with salt and black pepper, and cold water or well skimmed gravy in the proportion of a full dessert-spoonful to each ounce of the pulp. (If the meat is specially dry, add a little more liquid.) Beat it all well together to a thick cream.

The saucepan must now be put on a cool part of the stove or range, and the pulp warmed through very gradually, and very slowly cooked, being briskly stirred and beaten up with a wooden spoon the whole time.

mences to be restored as shown by the subsidence of local symptoms and reawakening of appetite, feeding by the mouth may be resumed by slow degrees, fluid enemata being continued at first, the following being a suitable sequence of foods:

Milk and Water or Soda Water, equal parts (peptonised if necessary).
Albumen Water with Salt.
Whey or Buttermilk.
An ounce every hour, increased gradually in quantity with extension of interval.

Benger's Food.
Blancmange.
Junket.
Custard.
Rusk in addition to milk, which may be fortified with one of the milk or meat dry extracts.

Sheep's or Calf's Brains.
Oysters.
Eggs, in addition to milk, with Beef Tea or Soup.

Tripe.
Sweetbread.
Boiled flat fish.
Calf's Head.
Stewed Sheep's Tongue.

Tea made with boiling Milk.
Bread-and-butter, or dry Toast.
Milk Gruel or Arrowroot.
Chocolate.
Milk Puddings, especially Rice.
Light Wine or Champagne.

The more easily digestible forms of ordinary food carefully cooked may follow, if there has been no set-back in the matter of pain, vomiting, nausea, or diarrhœa. It may be useful here to suggest that the juice of pine-apple taken in small quantity at the end of a meal is an agreeable and powerful digestive agent.

This gradation in diet may be usefully followed in convalescence from fevers and other severe illness, but is specially appropriate to gastric diseases and to cases after operations on the stomach, being adapted to enfeebled digestive power. As, however, such diet is selected with a view to avoiding bulky and indigestible

alkaline and laxative varieties. Light, non-acid wines, fruit juices, draught cider, lager beer, and weak tea are admissible.

At Carlsbad the diet prescribed for gouty patients is as follows:

Breakfast	Weak tea with cream. Biscuits, 2 to 4 oz. Butter, ½ oz. 2 soft-boiled eggs.
Midday Dinner	Soup, either clear or with pearl barley or rice, 1 oz. Fish, 3½ oz., with melted butter and lemon juice. Potatoes, 2 oz. Roast meat, 3½ oz. Cheese, 1 oz. Stewed fruit, 3½ oz. Bread, 5 oz.
Supper	Soup, milk or weak tea. Biscuits. Lean bacon or 1 or 2 eggs.

With dinner and supper pure or mineral water, with half a pint of light claret or two tablespoonfuls of whisky, is allowed.

Diabetes.—In this disease there is excessive loss of water, sugar, and nitrogenous bodies, which have to be limited and made good as far as possible by modifications in the food taken. These consist in (1) eliminating as far as possible every article of diet which may furnish glucose, and (2) meeting the nitrogenous losses by an increased amount of animal food. Plenty of fluid must be given, a considerable amount of meat, while the carbohydrates are replaced by green vegetables and fats in various forms. Fruits, containing as they do starch and sugar, though in small proportion, may only be tolerated in small quantities. Objection does not extend to such as are not sweet, as tomatoes, olives, and hard nuts

FORMULÆ

FUNCTIONAL DISTURBANCE OF LIVER (pp. 1–10)

℞. Pil. Hydrarg. . . . . gr. iij
Ext. Hyoscyam. . . . . gr. j
Ext. Aloes . . . . . gr. j
M. ft. pil

The Quarter-grain Pill

℞. Euonymin . . . . . } ää gr. ¼
Podophyllin . . . . . }
Iridin . . . . . }
Extracti Taraxaci . . . . . q.s.
Calomel gr. ¼ may be added
M. ft. pil.

Black Draught

℞. Magnesii Sulphatis . . . . . ℥jss
Ext. Glycyrrhiz. Liq. . . . . ♏ xxiv
Tincturæ Sennæ . . . . . ℥j
Tinct. Cardam. co. . . . . ♏ xxxvj
Infusum Sennæ . . . . . ad ℥j
To be taken in the morning.

For Bilious Indigestion

℞. Sodæ Salicylatis . . . . . gr. x
Succi Taraxaci . . . . . ℥ss
Sodæ Sulphatis . . . . . ℥ss
Sp. Am. Aromat. . . . . ♏ xx
Sp. Chloroformi . . . . . ♏ x
Infusum Gentianæ . . . . . ad ℥j
Three times a day before meals.

Stimulant Draught

℞. Ammonii Carbonatis . . . . . gr. x–xxx
Lactis . . . . . Oss

Bile Stimulant

℞. Podophyllin. Resinæ . . . . . gr. j
Glycerini . . . . . ℥j

℥j at intervals of 2–4 hours.

FLATULENCE (pp. 10–15)

℞. Sp. Am. Arom. . . . . ℥ss
Sp. Chloroformi . . . . . ♏ xx
Tinct. Carminativæ . . . . . ♏ x
Aquam . . . . . ad ℥j

℞. Sp. Am. Arom. . . . . ♏ xx
Sp. Chloroformi . . . . . ♏ x
Sodæ Bicarbon. . . . . gr. x
Infusum Caryophylli . . . . . ad ℥j

℞. Menthol. . . . . gr. ¼
Calomel. . . . . gr. ⅛
Pulv. Zingiberis . . . . . gr. ij
Maltine . . . . . q.s

M. ft. pil.

One to be taken every quarter of an hour till relief is obtained.

Emergency Prescription for Flatulence

Pour a wine-glassful of boiling water on 5 crushed cloves and add 20 grains of Bicarbonate of Soda.

Enema Terebinthinæ

℞. Olei Terebinthinæ . . . . . ℥j
Mucilaginis Amyli . . . . . ℥xv

℞. Olei Terebinthinæ . . . . . ℥ss
Enema Saponis . . . . . Oss

Enema Asafetidæ

℞. Asafetidæ . . . . . gr. xxx
Aq. destillat. . . . . ℥iv

Enema Rutæ

℞. Olei Rutæ . . . . . ♏ xxx
Mucilag. Acaciæ . . . . . ʒij
Enema Simplex . . . . . ad ʒvj

ACIDITY AND HEARTBURN (pp. 15–17)

℞. Magnesii Oxidi . . . . . } ää ʒss
Sodii Bicarbonatis . . . . . }
Sodii Phosphatis . . . . . }
Sacchari Albi . . . . . }

ʒj at intervals of half an hour or oftener.

For Hiccough

Chloretone . . . . . gr. v

In Gelatine capsule.

FOR REMOVING SCYBALA (p. 31)

℞. Ol. Crotonis . . . . . gr. ½
Pulv. Zingiberis . . . . . gr. ij
Maltine . . . . . q.s.

M. ft. pil.
1 or 2 three times a day.

FOR CRACKS ON THE LIP, FINGER, OR NIPPLE (p. 32)

Hebra's Lotion

℞. Ac. Carbolici . . . . . ʒij
Glycerini . . . . . ʒj
Etheris . . . . . ʒj
Sp. Vin. Rect. . . . . ʒvj

Ft. lotio.

℞. Plumbi Acetatis . . . . . gr. xv
Adipis præparatæ . . . . . ʒj

M. ft. ung.

CATARRHAL HERPES (p. 33)

℞. Zinci Oxidi . . . . . ʒj
Acidi Borici . . . . . ʒij
Amyli . . . . . ʒiij

PEPTIC ULCER (p. 36)

℞. Acid Nitro-Hydroch. dil. . . . . ♏ x
Liq. Strychninæ . . . . . ♏ iv
Sodii Sulphatis . . . . . ℥ss
Aq. Chloroformi . . . . . ad ℥j

Three times a day after food.

MOUTH WASH (p. 36)

Resembling Odol

℞. Salol . . . . . 2·5 parts
Saccharin . . . . . ·004 „
Ol. Menth. Pip. . . . . ·5 „
Alcohol (80%) . . . . . 97 „
Add oils of Clove and Caraway.

Resembling Glycothymoline

℞. Thymol . . . . . gr. j
Acid Benzoici . . . . . gr. j
Olei Gaultherii . . . . . gr. j
Eucalyptol . . . . . ♏ ss
Olei Menth. Pip. . . . . gr. ss
Spir. Vin. Rect. . . . . ℥j
Acidi Borici . . . . . gr. xxv
Glycerini . . . . . ℥j
Tincturæ Cocci . . . . . ♏ xx
Aq. destill. . . . . ad Oj

REMEDY FOR TOOTHACHE (p. 41)

℞. Tincturæ Aconiti . . . . . ℥ij
Linimenti Iodi . . . . . ℥ij
Chloroformi . . . . . ℥ij

To be rubbed on the gum after drying.

Odontodol for Toothache (p. 42)

℞. Cocain. Hydrochloratis . . . . . gr. xvj
Acid. Hydrocyan. dil. . . . . ♏ xvj
Tincturæ Arnicæ . . . . . ℥ij
Liq. Am. Acetat. . . . . ad ℥j

To be applied to the tooth cavity or rubbed on the gum.

REMEDIES FOR LOSS OF HAIR (pp. 54 5)

LOTIONS

Erasmus Wilson

℞.	Ol. Amygdalæ	℥j
	Liq. Ammoniæ	℥j
	Eau de Cologne	℥j
	Ol. Rosmarini	℥iij
	Ol. Myristicæ	℥iv
	Tinct. Jaborandi	℥j
	Aq. Rosæ	ad ℥viij

Hebra

℞.	Tinct. Canthar.	℥ss
	(or Ac. Tannici	gr. xij)
	Sp. Vin. Rectif.	℥v
	Sp. Lavandulæ	℥j
	Ether. Sulphurat.	℥ij
	Glycerini	℥iv
	Ol. Bergamot.	♏ x

Tanno-Quinine

℞.	Quin. Hydrochl.	gr. xxiv
	Acidi. Tannici	℥j
	Alcohol. (60 %)	℥xss
	Tinct. Cantharid.	℥j
	Glycerini	℥vj
	Eau de Cologne	℥iv
	Vanilin	gr. ss
	Ligni Santali.	gr. iij
	Pilocarpin. Nitrat.	gr. iv

Mix, macerate 4 days and filter—(℥xij).

POMADES

Tanno-Quinine

℞.	Olei Theobromi	℥jss
	Ung. Emollient.	℥ss
	Ol. Amygdalæ	℥jss
	Quin. Sulph. dissolved with acid	gr. x
	Aq. Rosæ	℥ss
	Ol. Citri.	℥ss
	Ol. Bergamot.	♏ xx
	Ol. Lavandulæ	♏ xx
	Ac. Tannici	gr. xl
	Tinct. Cantharid.	℥j
	Eau de Cologne	℥iij

Duputren

℞. Medullæ Ossium . . . . . ℥ij
Extracti Cinchonæ . . . . . ℥ij
Tinct. Cantharid. . . . . ℥j
Succi Citri . . . . . ℥j
Olei Limonis . . . . . ♏ xx
Olei Bergamot. . . . . ♏ x

Gemmarum Populi

℞. Resin. Gem. Populi . . . . . ℥j
Adip. præparatæ . . . . . ℥vj
Aq. Rosæ . . . . . ♏ clx

Heat together and add

Olei Citri . . . . . }
Olei Bergamot. . . . . } ää ♏ x
Olei Rosmarini . . . . . }

FRECKLES (p. 69)

Unna's Formula

℞. Bismuthi Oxychloridi . . . . . ℥j
Calomelanos . . . . . gr. ½
Hydrogen. Peroxid. (10 vol.) . . . . . ℥j
Adipis Lanæ et Vaselini . . . . . ää ℥iv

Ft. ung.

℞. Bismuthi Trinitratis . . . . . ℥ij
Hydrarg. Ammoniati . . . . . ℥ij
Adip. præparatæ . . . . . ℥j

To be spread on lint and laid on the patches at night

Aqua Cosmetica Orientalis

℞. Hydrargyri Perchloridi . . . . . ℥j
Aquæ destillatæ . . . . . ℥iv
Ovorum xxiv Albumen
Succi Citri (*i.e.* Malæ Med.) . . . . . ℥iij
Sacchari Albi. . . . . ℥viij

REMEDIES FOR CHILBLAINS (pp. 75–76)

Dusting Powders

℞. Acidi Borici . . . . . 50 parts
Talci Purificati . . . . . 25 „
Amyli . . . . . 25 „
Camphor vel Menthol . . . . . gr. xv in ℥j

℞. Calamine . . . . . 7 parts
Menthol . . . . . 1 part

Unguentum

℞. Olei Gaultherii . . . . . ℥ij
Menthol . . . . . gr. xv
Adip. Lanæ . . . . . ℥j

Lotio

℞. Plumbi Acetatis . . . . . gr. xvj
Alcohol (90 %) (or Eau de Cologne) . . . . ℥j
(Saturated Solution)

Lotio Plumbi Spirituosus

℞. Liq. Plumbi Subacet. fort . . . . . 1 part
Glycerini . . . . . 2 parts
Alcohol. (90 %) . . . . . 4 „
Aq. Rosæ . . . . . 25 „

Bath

℞. Aluminis . . . . . ℥ij
Aq. Calid. . . . . Cj
Steep Chilblains for 5 minutes.

℞. Liq. Plumbi . . . . . ℥j
Tinct. Opii . . . . . ℥j
Glycerini . . . . . ℥j
Aquam . . . . . ad ℥viij
To be applied on lint, covered with protective.

FOR BROKEN CHILBLAINS

Unna

℞. Resorcin. vel Ichthyol. . . . . 5 parts
Acid. Salicylici . . . . . 3 „
Paraffini Mollis . . . . . 100 „
Ft. ung.

Carbolic Acid in Vaseline 5%

REMEDIES FOR WARTS (p. 78)

℞. Magnesii Sulphatis . . . . . ℥ss
Aq. Menth. Piperitæ . . . . . ℥j
Three times a day for adults, ℥j for children.

℞. Acid. Nitro-Hydrochlor. dil. . . . . ♏ xx
Aq. Chloroformi . . . . . ℥j
After meals three times a day.

℞. Tinct. Thuyæ Occidentalis . . . . . ♏ xxx–lx
Ext. Glycyrrhiz. Liq. . . . . ʒss
Aquam . . . . . ad ʒj

Three times a day.

LOCAL REMEDIES (p. 79)

Nitric Acid	Caustic Soda
Acid Nitrate of Mercury	Chromic Acid
Liquefied Carbolic Acid	Glacial Acetic Acid
Sodium Ethylate	Liquor Ferri Perchloridi fort.
Caustic Potash	Liq. Plumbi Subacetatis fort.

Saturated Solution of Salicylic Acid in Alcohol.

Kaposi's Solution

℞. Sulphuris . . . . . ℈v
Glycerini . . . . . ʒjss
Acidi Acetici . . . . . ʒijss

To be applied daily.

CORN CURE (p. 81)

℞. Acidi Salicylici . . . . . gr. xv
Ext. Cannab. Ind. . . . . gr. viij
Alcohol. . . . . ♏ xv
Etheris . . . . . ♏ xj
Collodium Flexile . . . . . ad ʒij

Inflamed Corn

Apply a wet compress or pad steeped in Lotio Plumbi *c* Opio.

RHEUMATIC SORE THROAT (p. 92)

℞. Sodii Salicylatis . . . . . gr. xv
Potassii Citratis . . . . . gr. xv
Olei Limonis . . . . . ♏ j
Sp. Chloroformi . . . . . ♏ x
Aquam . . . . . ad ʒj

Every four hours for an adult.

GARGLES FOR SEPTIC SORE THROAT (pp. 93–96)

℞. Hydrarg. Perchlor. . . . . gr. ij
Acid. Hydrochlor. dil. . . . . ʒij
Glycerini . . . . . ℥j
Aquam destillat. . . . . ad ℥x

17

℞. Potass. Chloratis . . . . . ℥j
Acid. Hydrochlor. . . . . ♏ xij
Aquam . . . . . ad ℥x

℞. Potass. Permang. . . . . gr. iv
Aquam . . . . . Oj

℞. Formalin Solution (40%) . . . . . ♏ x
Aquam . . . . . ad ℥x

Acetozone. Saturated Solution in Water . . gr. x to Oj

MIXTURES

℞. Potass. Chloratis . . . . . ℥ss
Acid. Hydrochlor. . . . . ℥j
Quin. Sulphatis . . . . . gr. xxxvj
Syrupi Aurant. . . . . ℥j
Aquam . . . . . ad ℥xij

℥j every three hours.

℞. Liq. Ferri Perchlor. . . . . ♏ xv
Sp. Chloroformi . . . . . ♏ x
Glycerini . . . . . ♏ xx
Aquam destillat. . . . . ad ℥j

Three times a day.

℞. Liq. Hydrarg. Perchlor. . . . . ℥j
Potassii Iodidi . . . . . gr. v
Sp. Am. Arom. . . . . ♏ xx
Decoct. Cinchonæ . . . . . ℥j

Three times a day.

℞. Liq. Ferri Perchlor. . . . . ♏ xv
Liq. Hydrarg. Perchlor. . . . . ♏ xv
Liq. Strychninæ . . . . . ♏ v
Tinct. Aconiti . . . . . ♏ iij
Potassii Chloratis . . . . . gr. v
Glycerini . . . . . ℥j
Aquam destillat. . . . . ad ℥j

Three times a day.

℞. Tinct. Nucis Vom.. . . . . ♏ v
Tinct. Cinchonæ co. . . . . ℥ss
Sp. Am. Arom. . . . . ♏ xx
Aquam Chloroformi . . . . ad ℥j

Three times a day.

REMEDIES IN CATARRH (pp. 97–105)

℞. Terebene . . . . . ⎫
Ol. Eucalypti . . . . . ⎬ āā ʒij
Camphor. . . . . ⎭
Menthol. . . . . ⎭

3–5 ♏ for inhalation.

COLLUNARIA

Basis		With either	
Sodii Bicarbon. vel		Hazeline . . .	♏ xx
Sodii Biboratis .	gr. iv	Alum . . .	gr. v
Aquam . . .	ad ʒj	Liq. Pot. Perm. .	♏ vj
		Quin. Sulph. . .	gr. ½
		Zinc Sulph. . .	gr. ½
		Menthol . . .	gr. ¼

Dobell's Solution

℞. Glycerini Acid. Carbol. . . . . ♏ x
Sodii Biboratis . . . . . gr. vj
Sodii Bicarbonatis . . . . . gr. vj
Aquam . . . . . ad ʒj

Linctus

℞. Tinct. Camph. co. . . . . ⎫
Oxymel. Scillæ . . . . . ⎬ āā ʒss
Succi Limonis . . . . . ⎭

ʒj to be taken frequently.

℞. Vin. Antimon. . . . . ♏ x
Vin. Ipecac. . . . . ♏ x
Sp. Æth. Nitros. . . . . ʒss
Liq. Am. Acet. . . . . ʒij
Syrup. Limon. . . . . ʒj
Mist. Amygdal. . . . . ad ʒj

Every four hours.

℞. Ammon. Carb. . . . . gr. v
Tinct. Camph. co. . . . . ♏ xx
Syrup. Scillæ . . . . . ʒss
Syrup. Tolu. . . . . ʒj
Infus. Senegæ . . . . . ad ʒj

Every four hours.

℞. Vin. Ipecac. . . . . ʒss
Tinct. Scillæ . . . . . ʒss
Sp. Am. Arom. . . . . ʒss
Glycerini . . . . . ʒj
Aq. destillat. . . . . ad ʒjss

ʒj–ij every four hours for children.

PLEURODYNIA (pp. 107–110)

℞. Tinct. Ferri Perchloridi . . . . . ♏ x
Liq. Arsenic. Hydrochlor. . . . . ♏ v
Glycerini . . . . . ʒ ss
Aq. Chloroformi . . . . . ad ʒ j
Three times a day.

℞. Sodii Salicylatis . . . . . } āā gr. x
Sodii Bromidi . . . . . }
Phenazoni . . . . . }
Aq. Camphoræ . . . . . ad ʒ j
Three times a day.

HYPNOTICS (pp. 113, 114)

℞. Morphini . . . . . gr. ½
Atropini . . . . . gr. 1/150
Strychnini . . . . . gr. 1/30
Aquam . . . . . ♏ vj
♏ iij–vj for hypodermic injection, particularly in cardiac cases.

℞. Potassii Bromidi . . . . . } āā gr. x
Sodii Bromidi . . . . . }
Ammon. Bromidi . . . . . }
Acid. Hydrocyan. dil. . . . . ♏ iij
Sp. Am. Arom. . . . . ♏ xx
Sp. Chloroformi . . . . . ♏ xx
Aq. Menth. Pip. . . . . ad ʒ j
The draught to be taken at night.

℞. Potass. Bromidi . . . . . gr. xx
Chloral. Hydratis . . . . . gr. xv
Tinct. Cannabis Indic. . . . . ♏ x
Mucil. Acaciæ . . . . . ʒ j
Aq. Chloroformi . . . . . ad ʒ j
The draught to be taken at night.

HEADACHE (pp. 126–143)

℞. Liq. Trinitrini . . . . . ♏ ij
Acid. Hydrobrom. dil. . . . . ♏ xx
Aquam . . . . . ʒ ss
Twice with half an hour interval at the onset of migraine.

℞. Phenacetin. . . . . gr. x
Caffein. Citrat. . . . . gr. v

℞. Phenacetin. . . . . gr. x
Butyl Chloral . . . . . gr. x

℞. Antipyrin. . . . . gr. x
Caffein. Citrat. . . . . gr. v

In cachet or powder.

℞. Phenazoni . . . . . } āā gr. x
Sod. Salicylat. . . . . }
Am. Bromidi . . . . . }
Aq. Camph. . . . . ad ℥j

Every two hours till four doses have been taken.

℞. Quin. Muriat. . . . . gr. ij
Tincturæ Guaransæ . . . . . ʒss
Acid. Hydrobrom. dil. . . . . ♏ xx
Aquam Chloroformi . . . . . ad ℥j

Three times a day before meals.

℞. Butyl Chloral . . . . . gr. iij
Gelseminini Hydroch. . . . . gr. $\frac{1}{100}$
Glycerini Tragacanth. . . . . q.s.

M. ft. pil.

℞. Pot. Bromidi . . . . . gr. xx
Tinct. Valerian. Am. . . . . ʒj
Aq. Camphoræ . . . . . ad ℥j

Headache in Anæmia

℞. Sodii Salicylatis . . . . . gr. xx
Ferri et Am. Cit. . . . . gr. v
Sp. Am. Aromat. . . . . gr. xxx
Aq. Chloroformi . . . . . ad ℥j

Three times a day.

℞. Tinct. Ferri Perchlor. . . . . ♏ x
Liq. Arsenici Hydrochl. . . . . ♏ v
Glycerini . . . . . ʒss
Aquam destill. . . . . ad ℥j

Three times a day after food.

Headache with Digestive Disturbance

℞. Succi Taraxaci . . . . . ʒss
Sod. Sulphatis . . . . . ʒss
Tinct. Nucis Vom. . . . . ♏ v
Sp. Am. Aromat. . . . . ♏ xx
Aq. Chloroformi . . . . . ad ℥j

Three times a day before food.

Headache with High Arterial Tension

℞. Potassii Citratis . . . . . gr. xv
Liq. Ammonii Acet. . . . . ʒij
Sp. Ether. Nitros. . . . . ʒss
Aq. Laurocerasi . . . . . ʒj
Aquam Camphoræ . . . . . ad ℥j

Three times a day.

℞. Pot. Iodidi . . . . . gr. iij
Pot. Bromidi . . . . . gr. xv
Acidi Hydrobrom. dil. . . . . ♏ xx
Aq. Camphoræ . . . . . ad ℥j

Three times a day.

Headache with Low Arterial Tension

℞. Tinct. Nuc. Vom. . . . . ♏ v
Tinct. Quin. Ammon. . . . . ʒj
Tinct. Aurantii . . . . . ʒj
Aq. Chloroformi . . . . . ad ℥j

Three times a day before meals.

REMEDIES IN SEA-SICKNESS (pp. 145–146)

℞. Pot. Bromidi. . . . . }
Am. Bromidi. . . . . } āā gr. xx
Sod. Bromidi. . . . . }

To be taken in ½ pint of Soda Water.

Chloretone gr. v in gelatine cachet.

℞. Morphini Tartarati . . . . . gr. ¼
Atropinæ Sulphatis . . . . . gr. $\frac{1}{100}$

TONIC (pp. 151–154)

℞. Tinct. Nucis Vomicæ . . . . . ♏ v
Tint. Cinchonæ co. . . . . ʒss
Sp. Am. Aromat. . . . . ♏ xx
Tinct. Aurantii . . . . . ʒss
Aq. Chloroformi . . . . . ad ℥j

Three times a day before meals.

EPISTAXIS AND OTHER HÆMORRHAGE (p. 160)

℞. Calcii Chloridi . . . . . gr. xx
Syrupi Aurantii . . . . . ʒj
Aquam . . . . . ad ℥j

Three times a day.

℞ Magnesii Carbonat. levis . . . . . gr. x
Magnesii Sulphatis . . . . . ʒj
Aq. Menth. Piperit. . . . . ℥j

FIBROSITIS AND MYALGIA (p. 172)

℞. Sodii Sulphatis . . . . . ʒss
Pot. Iodidi . . . . . gr. v
Sodii Salicylatis . . . . . gr. x
Extract. Glycyrrhiz. liq. . . . . ʒss
Aquam . . . . . ad ℥j

REMEDIES FOR THE EYE (pp. 174–176)

LOTION FOR STYES (p. 56)

℞. Sodii Bicarb. . . . . ʒj
Boracis . . . . . ʒj
Acid Hydrocyan. dil. . . . . ʒss
Aq. Sambuci . . . . . ʒij
Aq. destillat. . . . . ad ℥viij

LOCAL ANÆSTHETIC

℞. Cocain. . . . . gr. x
Olei Ricini . . . . . ℥j

OINTMENTS (p. 177)

℞. Ung. Hydrarg. Nit. . . . . ʒj
Vaselin. Alb. . . . . ad ℥j

℞. Acidi Borici . . . . . ʒj
Vaselin Alb. . . . . ad ℥j

℞. Hydrarg. Oxidi Flav. . . . . gr. iv–viij
Paraffini Mollis . . . . . ℥j

COLLYRIA (p 175)

℞. Acid. Borici. . . . . gr. x
Aq. destillat. . . . . ad ℥j

℞. Sodii Bicarb. . . . . gr. xv
Aq. destillat. . . . . ad ℥j

℞. Boracis . . . . . gr. x
Aquam dest. . . . . ℥j

℞. Hazeline . . . . . ♏ xx
Aquam dest. . . . . ad ℥j

℞. Zinci Chloridi . . . . . gr. ss
Aquam dest. . . . . ad ℥j

℞. Acetozone . . . . . gr. ½
Aquam dest. . . . . ad ℥j
Saturated watery solution filtered after standing 4 hours.

SOLUTIONS FOR SINGLE APPLICATION

℞. Arg. Nitratis . . . . . gr. x
Aq. destillat. . . . . ad ℥j

℞. Protargol . . . . . gr. xv
Aq. destillat. . . . . ad ℥j

THE EAR (pp. 180–181)

℞. Acidi Borici . . . . . gr. x
Aq. destillat. . . . . ℥j

℞. Argent. Nitratis . . . . . gr. xxx
Aq. destillat. . . . . ℥j

℞. Hydrarg. Subchlor. . . . . ℥j
Adipis præparat. . . . . ℥j

℞. Hydrarg. Ammon. . . . . gr. xx
Paraffin. Moll. . . . . ℥j

℞. Ung. Hydrarg. Nit. . . . . ℥j
Vaselini Alb. . . . . ℥j

℞. Tinct. Opii . . . . . } p. æq.
Tinct. Belladonnæ . . . . . }
Sol. Cocainæ Alcoholic . . . . . }

℞. Sodii Bicarb. . . . . gr. xx
Glycerini . . . . . ℥j
Aq. Rosæ . . . . . ad ℥j

Liq. Hydrarg. Perchlor. 1–1000

℞. Calcii Hypochloritis . . . . . gr. ij
Aquam destill. . . . . ad ℥j

℞. Sodii Hypochloritis . . . . . gr. iv
Aquam destillat. . . . . ad ℥j

REMEDIES FOR NOSE (p. 183)

Lotio Sulphuris c. Sapone

℞. Saponis Mollis . . . . . gr. ½
Sulphur. præcipitat. . . . . gr. xxx
Eau de Cologne . . . . . ℥j
Glycerini . . . . . ♏ v
Aq. Rosæ . . . . . ℥j

Ung. Sulphuris

℞. Sulphuris Sublimati . . . . . ℥j
Adip. Benzoat. . . . . ℥ix

FOR HAY FEVER (p. 184)

℞. Cocaine . . . . . gr. j
Sol. Adrenalin. 1–1000 . . . . . ℥j

COLLUNARIA (pp. 184–185)

Dobell's Solution, etc. (see p. 260).

3 per cent. Solution Peroxide of Hydrogen.

Acetozone, Saturated Watery Solution.

NEBULA (p. 186)

℞. Thymol . . . . . gr. x
Petrol. Liq. . . . . ℥j

℞. Camphor . . . . . } āā ℥ij
Menthol . . . . . }
Terebene . . . . . }
Eucalyptol . . . . . }

GENITO-URINARY SYSTEM (p. 188)

FOR VULVO-VAGINITIS

℞. Zinci Sulphatis . . . . . gr. v
Aq. destillat. . . . . ad ℥j

℞ Aluminis . . . . . gr. v
Aq. destillat. . . . . ad ℥i

Lot. Sulphatum

℞. Zinci Sulphatis . . . . . gr. xxx
Aluminis . . . . . gr. xxx
Ferri Sulphatis . . . . . gr. xx
Cupri Sulphatis . . . . . gr. ij
Aquam . . . . . ad ℥ viij

ENURESIS (p. 188)

℞. Tinct. Lycopodii . . . . . ʒ ss
Syrupi Aurantii . . . . . ♏ xx
Phenazoni . . . . . gr. v
Aquam . . . . . ad ℥ ss

Before bedtime.

DYSURIA (p. 190)

℞. Tinct. Hyoscyami . . . . . ʒ ss
Sodii Bromidi . . . . . gr. x
Acid. Hydrocyan. dil. . . . . ♏ iv
Infusum Buchu . . . . . ad ℥ j

Three times a day.

℞. Ammon. Benzoatis . . . . . gr. x
Tinct. Hyoscyami . . . . . ʒ ss
Pot. Bromidi . . . . . gr. x
Infusum Buchu . . . . . ad ℥ j

Three times a day.

MENSTRUATION (p. 191)

Ammonol. . . . . gr. v

In Tabloid.

Chloretone . . . . . gr. v

In Gelatine Cachet.

CLIMACTERIC NEUROSES (p. 192)

℞. Tinct. Valer. Am. . . . . ʒ j
Pot. Bromidi . . . . . gr. xv
Aq. Camphoræ . . . . . ad ℥ j

Three times a day.

Ichthyol . . . . . gr. v

In pil. three times a day.

STIMULANT MIXTURE (p. 232)

℞. Tinct. Aurantii . . . . . ʒ ij
Sp. Ætheris . . . . . ʒ ss
Sp. Am. Aromat. . . . . ʒ ss
Tinct. Nucis Vomicæ . . . . . ♏ x
Aq. Chloroformi . . . . . ad ℥ j

INFANTS (pp. 194–198)

STOMATITIS

Glycerini Boracis.

℞. Potass. permanganatis . . . . . gr. v
Aq. destillat. . . . . ʒj

℞. Acid. Borici . . . . . gr. xv
Aq. destillat. . . . . ʒj

Lapis Divinis

℞. Cupri Sulphatis . . . . . } p. æq.
Aluminis . . . . . }
Potass. Nitratis . . . . . }

Fused together.

DIARRHŒA IN INFANTS (pp. 195–196)

℞. Sodii Bic. . . . . gr. iij
Pulv. Rhei. . . . . gr. vj
Pulv. Zingib. . . . . gr. j

For a child up to two years.

℞. Sod. Bicarb. . . . . gr. ij
Bismuth. Carbon. . . . . gr. jss
Pulv. Tragac. co . . . . . gr. j
Sp. Chloroformi . . . . . ♏ jss
Aq. Cinnamomi . . . . . ad ʒj

Every 2–4 hours.

Bism. Subgallatis . . . . . gr. ij–v

In place of Bism. Carbon., if Diarrhœa continues.

℞. Ext. Hæmatoxyli . . . . . gr. ijss
Tinct. Catechu . . . . . ♏ v
Syrupi Tolu. . . . . ♏ x
Aq. Cinnam. . . . . ad ʒj

Every 4 hours.

CONSTIPATION (p. 197)

℞. Tinct. Belladon. . . . . ♏ v
Tinct. Nucis Vom. . . . . ♏ ss
Syrupi Sennæ . . . . . ♏ x
Inf. Gentian co. . . . . ad ʒj

Three times a day for a child of three or four.

COLIC AND FLATULENCE (p. 198)

℞. Mag. Carb. . . . . gr. jss
Pulv. Rhei. . . . . gr. ¼
Syrup. Zingib. . . . . ♏ v
Aq. Menth. Pip. . . . . ad ʒj

Every 2 hours.

INDEX

Acanthosis Nigricans, 78
Acetanilid, 118, 131
Aceto-Pyrine, 133
Acetozone, 185
Acne Rosacea, 182
Actinic Melanoses, 69
Adenoid Growths, 184
Adrenalin in Epistaxis, 159
Alcohol as a beverage, 224
—— in Delirium, 230
—— and Digestion, 223
—— with Digitalis, 232
—— effects of, 225
—— as a food, 226
—— complete Oxidation, 231
—— as a stimulant, 226, 231
—— and Soporifics, 225
Ale as a beverage, 227
Alimentation by Skin, 245
Alkaline Waters in Bilious Attack, 7
Alopecia Furfuracea, 53, 55
Alveolar Abscess, 42
Ammonol, 191
Anal Veins, dilatation of, 9
Anæmia, 136
—— and Debility, 150
—— and Headache, 120
—— treatment of, 137
Anasarca, 5
Ant, wound made by, 58
Anti-Neuralgics, 133
Antipyrin in Neuralgia, 133
—— as a Hypnotic, 114
—— Caffeine Citricum, 127, 133
—— Salicylate, 135
Anus, fissure of, 43
Aphthous Stomatitis, 37
—— **Vulvitis**, 188
Appetite, loss of, 3
Arbor Vitæ, for Warts, 79
Arterial Tension and Sleeplessness, 114
Arum Lily Bulbs, rash from handling, 65
Ascites, 5
Aspirin, 135
Asthma, 27
Atrophic Rhinitis, 184

Bacillus of Smegma, 186
Balanitis, 186
Baldness, 49
Ballooning of Rectum, 25
Bathing, 203
Baths, Hot, in Liver Chill, 10
Bednar's Aphthæ, 193
Beef Cakes in Obesity, 241
Bees, stings of, 59
Bile Circulation, 4
—— **Resorption**, 4
Biliary Fistula, 4
Bilious Attack, 2
—— —— treatment of, 6
Bites of Insects, 58
Black Bean, poison from, 66
"—— **Eye**," 170
Blepharitis, 176
Blisters, 84
Blood Coagulability, 71
—— **Pressure**, variation in, 154

Blue-staining of Feet, 86
"Blues, The," 8
Boils in Ear, 180
Borborygmi, 13
Bottled Ale as a beverage, 227
Brandy as a beverage, 229
Broken Chilblains, 76
Bromides, 113
—— in Sea-sickness, 145
Brow Ague, 121, 129
Bruises, 170
Bulbs, rash from handling, 65
Bunion, 82
Bursitis, 169
Buttercups, rash from handling, 66
Buttocks, pimples on, 57
Butyl Chloral as a hypnotic, 114
—— in Neuralgia, 133

Cactein Pillets, 158
Caffein, 133, 134
Callosities, 80
Cannabis Indica, 133, 134
Caput Succedaneum, 194
Carbonate of Ammonia in Bilious Attack, 7, 10
—— —— in Headache, 142
Cardiac Overstrain, 159
Caries of Teeth, 41
Carlsbad Salt, 140
Casinea Aculeata, *see* Dogwood
Castanospermum Australe, *see* Black Bean
Catarrh, 97
—— Duodenal, 8
—— of Stomach, 1, 106
Catarrhal Herpes, 32
—— **Sore Throat**, 97
Caterpillar Rashes, 64
Cephalalgia, 115
Cephalhæmatoma in Infants, 194
Cerumen, 181
Cheese and Folliculitis, 37
Chilblains, 70
—— Broken, 76
Childhood, diet in, 221
"Chill on the Liver," 9
Chloral in Insomnia, 113
Chloretone, 114, 121, 127, 131, 191
—— in Sea-sickness, 146
Chloride of Calcium, 160
Chocolate as a beverage, 235
Chromic Acid for Ulcer of Mouth, 35
Cider as a beverage, 228
Ciliary Blephiritis, 176
Circulatory System, 148 *et seq.*
Clavus, 121
—— **Hystericus**, 129
Climacteric Neuroses, 191
Climatic Headache, 142
Clothing, 209
Cocoa as a beverage, 235
Cod Liver Oil, inunction of, 246
Codeine, 114
Coffee as a beverage, 233
Cognac as a beverage, 229
Cold Application in Headache, 120, 141
Cold in the Chest, 102
—— in the Head, 97
Colic in Infants, 197
Collunaria, 99
Colon, distension of, 14
Condiments, use of, 223
Congestion, 1
Congestive Headache, 119
Conjunctival Hæmorrhage, 176
Conjunctivitis, 175
—— Phlyctenular, 176
Constipation, 1, 24
—— in Infants, 196
—— insufficient fluid in, 25, 28
Convulsions, 25
Copræmia, 25
Corns, 80
—— and weather, 81
—— Soft, 82
Cough, Dry, 107
—— Habitual, 105
—— Hysterical, 106
—— loud barking, 106
—— Reflex, 181
Cracked Fingers, 84

Cracked Lips, 31
Cramp, 173, 205
"Crick in the Neck," 172
Croton Oil Pill, 31

Deafness, temporary, 179, 181, 182
Debility, 150
Defæcation, habit in, 27
Defluvium Capillitii, 49
Delirium, 113
Depression, 1
Diarrhœa, 3
—— Infantile, 195, 221
Diet, 215 *et seq.*
—— in Arthritis, 242
—— at Carlsbad, 243
—— in Childhood, 221
—— in Diabetes, 243
—— General, in health, 206
—— in Gout, 242
—— Graduated, 248
—— in Gravel, 242
—— Meat, 238
—— Milk, 237, 249
—— in Nephritis, 244
—— in Obesity, 239
—— in Old Age, 222
—— Salisbury, in Obesity, 240
—— Special, 236 *et seq.*
—— Vegetarian, 236
Diet-Scales, 216 *et seq.*
Digestibility Table, 219
Digestive System, 1 *et seq.*
Diphtheria, 89
Diuretin, 135
Dobell's Solution, 100
Dogwood, rash from handling, 66
Dormiol as a hypnotic, 114
Drains, 93
Drinking Water, 213
Drowsiness, 9, 115
Dry Mouth, 33
Duodenal Catarrh, 8
Dwelling, the, 212
Dyes, irritant, 87
Dysoxylon Muelleri, *see* Red Bean
—— **Richii**, irritation from handling, 66
Dyspepsia, 1, 17
—— Atonic, 35
Dyspeptic Ulcer, 35
Dysuria, 189

Ear, the, 179 *et seq.*
Eating too Fast, 19
"Eclipse Blindness," 179
Eczema of Lips, 32
—— Sun, 67
Elder Leaves, rash from handling, 66
Emotional Palpitation, 158
Enemata Formulæ, 247
—— of Hot Water, 21
—— Nutrient, 246
Enteroptosis, 45
Enterospasm, 13, 14
Enuresis, 188
Ephelides, 69
Episcleritis, 176
Epistaxis, 26, 159
Eructation, 12
Erythema Neonatorum, 194
—— **Pernio**, 70
—— **Solare**, 67
Eucalyptus Maculata, rash from handling, 66
Exalgin, 118, 131, 133, 134
Exercise, 30, 200
Eye, the, 174 *et seq.*
—— foreign bodies in, 174
—— strain, 132

Fainting, 155
Falling Asleep after Eating, 2
Falling Hair, 49
Faradic Current for Chilblains, 76
Fatigue Headache, 141
Fauchard's Disease, 37
Feather-Few, rash from, 66
Fibrositis, 172
Fig Poultice in Toothache, 42
Finger Cracks, 84

"Fisherman's Elbow," 170
Fissure of Anus, 42
Flatulence, 1, 10, 13
—— in Infants, 197
Flipping First Sound, 149
Fluid, daily amount necessary, 28
—— habitual quantity, 209
—— insufficient, 25, 28
Flushing of Face, 12
Follicular Pharyngitis, 96
Folliculitis, 57
—— of Palate, 37
Foreign Bodies in Eye, 174
Formic Acid, 59
Formolyptol, 37
Formulæ, 250
Fortified Wines, varieties of, 228
Freckles, 69
Furuncles of Ear, 180
—— of Nose, 186

Gastric Dilatation, 11, 12
—— **Distension,** 157, 227
—— **Function,** 16
Gaultherium Oil, 93, 102
Gelsemium, Gelseminine, 133, 134
Genito-Urinary System, 186 *et seq.*
Giddiness, 1
Gin as a beverage, 230
Gingivitis, 37
Glenard's Disease, 46
Glycothymoline, 36
"Golfer's Shoulder," 170
Gouty Headache, 142
Greek Wines, 228
"Growing Pains," 172
Guarana, 128, 236
Guaranine, 134
Gumboils, 39
Gut, twisting of, 10

Habit in Defæcation, 27
Hæmatoma Auris, 179
Hæmaturia, 190
Hæmorrhoids, 44
Hair, Falling, 49
Hair Lotions, 54
Hamamelis in Epistaxis, 160
Hard Hats and Baldness, 49
Harvest Bug, irritation from, 58, 61
Headache, Climatic, 142
—— from Fatigue, 141
—— in Fever, 141
—— Gouty, 142
—— Leeches in, 120
—— in "Liver," 1
—— Malarial, 129
—— Occasional, 139
—— Periodic, 121
—— Persistent, 115
—— and Plethora, 118
—— in Renal Disease, 115
—— Toxic, 140
Heartburn, 12, 15, 209
Hebra's Lotion, for Cracked Lips, 32
Hedonal, 114
Hemicrania, 121
—— in Sea-sickness, 143
Heroine, 114
Herpes, Catarrhal, 32
—— Preputialis, 33
Herpetic Fever, 33
Hiccough, 16, 17
Hock as a beverage, 228
Hop Pillow, 114
Hops in Insomnia, 114
Hordeolum, 56
Hornet, sting of, 59
Hot Baths in Liver Chill, 10
Hot Water Drinking, 9
—— —— in Bilious Attack, 9, 14
—— —— in Obesity, 239
Hyacinth Bulbs, rash from handling, 65
Hydrogen Peroxide for Hornet sting, 60
Hypertrophic Rhinitis, 184
Hypnotics, 114

Ichthyol, 192
—— Pills, 57
Icterus Neonatorum, 194

India Pale Ale as a beverage, 227
Indigestion, 17
Infantile Diarrhœa, 195
—— **Stomatitis**, 194
Infants, 192 *et seq.*
Influenza and Palpitation, 158
Ingrowing Toenail, 83
Insects, injuries inflicted by, 58
Insomnia, 111
—— Fanciful, 114
Intercostal Neuralgia, 107
Intestinal Croakings, 13
Invalids and Sea-sickness, 147
Itch Insect, irritation from, 58

Jigger, irritation from, 58

Kasemol for Chilblains, 76
Kola as a beverage, 235
Krameria Lozenge, 92
Kutnow's Powder, 140

Lager Beer as a beverage, 227
Languor, 148, 150
Lapis Divinis, 194
Laxatives, 30
Lead Plates for Enteroptosis, 46
Lentigines of Crocker, 69
Lettuce, preparation of, in Insomnia, 114
Light Wines, varieties of, 228
Lipoma Nasi, 183
"**Live Blood**," 178
"**Live-Long Tablets**" in Heartburn, 15
"**Liver**," 1
—— Chill on the, 9
Lotio Sulphuratum, 188
Low Arterial Tension, 148
Leeches in Headache, 120
Lumbago, 171

Madeira as a beverage, 228
Maintenance of Individual Health, 199 *et seq.*
Malarial Headache, 129
Malt Liquors, varieties of, 227
Marsala as a beverage, 228
Mastenea, *see* Dysoxylon Richii
Maté as a beverage, 236
Maturation of Wine, 229
Meals, insufficient intervals between, 18
—— Supernumerary, 208
Meatus of Ear, inflammation of, 179
Meibomian Cyst, 177
Menstruation, 191
Menthol Pill, 14
Mercury in Bilious Attack, 6
—— in Headache, 118
Mesotan for Chilblains, 76
Meteorism, 10
Migraine, 121
—— "Reflex," 126
Migranin, 127, 133
Milk Diet, 237
—— Skimmed, in Obesity, 239
—— sterilising of, 208
Mistura Bismuthi Co., 23
Morphine as a hypnotic, 113
—— in Sea-sickness, 146
Moselle as a beverage, 228
Mosquitoes, bite of, 61
Mountaineering, Cardiac failure in, 158
Mouth, Ulcer of, 34
Mower's Mite, *see* Harvest Bug
Muscæ Volitantes, 3, 178
Muscle and Metabolism, 165
Muscular Debility, 3
—— **System**, 164 *et seq.*
Myalgia, 108, 170
Myocardial Degeneration, 148

Narcolepsy, 115
Nares, congestion of, 184, 185
—— irritation of, 183
Nasal Douche, 99
Nauheim System, 164
Neck, pimples on, 57
Nerve Stimulants, 233
Nervous Dyspepsia, 22
—— **System**, 111 *et seq.*
Nettles, rash from handling, 66

Neuralgia, 41, 117, 121, 132
Neuralgics, Anti-, 133
Neurasthenia, 144
Neuroses, Climacteric, 191
Neurosis, 151
Nose, the, 182 *et seq.*
Nose-Bleeding, 26, 159
Numbness, 154, 155
Nutrient Enemata, 246

Obesity, 239
Occasional Headaches, 139
Odol, 36
Odontalgia, 41
Odontodol, 42
Œsophageal tube in tympanites, 11
Ophiasis, 52
Oral Sepsis, 37
Otomycosis, 181
Otorrhœa, 182
Ozæna, 184

Palpitation, 157
Papules, 55, 57, 59
Paraldehyde, 114
Paronychia, 77
Patent Spirit as a beverage, 229
Periodic Headache, 121
Perry as a beverage. 228
Pharyngitis, Follicular, 96
Phebalium Argentum, 66
Phenacetin, 127
Phenazone, 114, 127, 133, 134
Phlebitis, 160
Phlyctenular Conjunctivitis, 176
Piles, 2, 44, 45
Pimples, on Buttocks, 57
—— on Neck and Face, 55
Pinna, deposits peculiar to, 179
" Pins and Needles," 154
Plant Rashes, 64
Plethora and Headache, 118
Pleurisy, 107, 108
Pleurodynia, 107
Poison Ivy, rash from handling, 67
Poison Oak, rash from handling, 67
—— **Sumach**, rash from handling, 67
Pomades, 55
Port as a beverage, 128
Portal Circulation, 5
—— **Reservoir**, 6
—— **Vein**, dilatation of, 5, 9
Porter as a beverage, 227
Potassium Iodide, 142
—— —— in Headache, 119
Pot Still Whiskey as a beverage, 229
Pressure Palsy, 155
Primula Obeonica, 65
—— **Sinensis**, 65
Proponal, 114
Protective Action of Liver, 4
Psychoses at Climacteric, 191
Purin Bodies, 134
Pustular Eczema, 78
Pyorrhœa Alveolaris, 37
Pyramidon, 133, 134

Quinine, 133

Rashes, from plants, etc., 64 *et seq.*
Raw Food, 208
Red Aniline Irritation, 87
—— **Bean**, poison from, 66
Reflex Migraine, 126
Refractive Errors, 126, 128, 132
Relaxed Throat, 90
Renaglandine, 45
Respiration, 200
Respiratory System, 88 *et seq.*
" Rest Cure," 154
Restlessness, 113
Rheumatic Sore Throat, 92
Rhinitis, Atrophic, 184, 185
—— Chronic, 184
—— Hypertrophic, 184
Rhubarb and Hæmaturia, 190
Rhus Diversiloba, *see* Poison Oak
—— **Radicans**, *see* Poison Ivy
—— **Vernix**, *see* Poison Sumach
Rigg's Disease, 37
" Run Down," 151

Salicyl Acetic Acid, 135
Salipyrin, 135
Salisbury Treatment, 22
Salt and Albuminuria, 238
Sandow's Training Diet, 216
Saturday Night Paralysis, 155
Scabies, 58
Schiedam as a stimulant, 230
Scurf, 50, 51
Sea-sickness, 143
Sebaceous Glands, inflammation of, 55
Seborrhæa, 51
—— treatment of, 53
"**Seeing Stars**," 178
Sentinel Pile, 44
Septic Throat, 93
Serum Nutrition, 246
—— **Therapy**, 90
Sherry as a beverage, 228
Shoulder Pain, 2
Skimmed Milk in Obesity, 239
Skin, diseases of, 48 *et seq.*
Sleep, 201
—— after meals, 203
Sleeplessness, 134
Smegma Bacillus, 186
Snake Venom (ingested), 5
Soda Lozenge in Heartburn, 15
Soporifics, 114
Sore Throat, 88
—— Catarrhal, 97
—— Rheumatic, 92
Spanish Brandy, 229
Special Subjects, 174
Spiders, wound made by, 58
Spirits, 229, 232
—— Patent, 229
—— Pot Still, 229
Spiritus Saponatus Kalinus in Seborrhea, 53, 55
Spotted Gum Rash, 66
Sprains, 166
Stiff Neck, 171
Stimulants in Bilious Attack, 7
Stimulation, 226
Stinging Nettle, irritation from touching, 59
Stings, 58
Stitch in the Side, 109
Stomatitis, Aphthous, 37
—— in Infants, 193
—— Ulcerative, 37
Stout as a beverage, 227
Stye, 56, 177
Sulphonal as a hypnotic, 114
Sun Eczema, 67
Sunburn, 67
Synchisis Scintillans, 178
Syncope, 155
Synovitis, 168

Tachycardia, 158
Taraxacum, 140
Tartar on Teeth, 36, 40
Tea as a beverage, 234
Teak, inflammation from sawdust of, 67
Teeth, Caries of, 41
—— Tartar on, 36
Teleangectasis, 182
"**Tennis Elbow**," 170
Teno-Synovitis, 168
Tetronal as a hypnotic, 114
Theobromine, 133, 134
—— **Salicylate**, 135
Throat, Catarrhal Sore, 97
—— Examination of, 88
—— Relaxed, 90
—— Rheumatic Sore, 93
—— Septic, 93
—— Sore, 88
—— Ulcerated, 93
Thrombosed Pile, 45
Thrush, 194
Thuya Occidentalis, 79
Thyroglandin in Obesity, 240
Tic Douloureux, 121, 130
Tinea Tarsi, 176
Tobacco, effect on heart, 157
—— and Insomnia, 157
Tongue, Dyspeptic Ulcer of, 35
—— Ulcer of, 34

Toothache, 41
Tophi in Lid, 177
Toxic Headache, 140
Tracheitis, 102
Trional as a hypnotic, 114
Trophoneurosis, 53
Tufnell's Diet, 218
Turkish Baths in Liver Chill, 10
Tympanites, 10

Ulcer, Dyspeptic, 35
—— of Mouth, 34
—— of Tongue, 34
Ulcerated Throat, 93
Ulcerative Stomatitis, 37
Uncooked Food, dangers of, 208
Urea, output of, 222
Urethane as a hypnotic, 114
Uvula, Elongated, 91

Variations in Blood Pressure, 154
Varicocele, 162
Varicose Veins, 160
Variety of Occupation, 214
Vegetarian Diet, 236
Veronal as a hypnotic, 114
Verruca, 78
Vertigo, 3, 60, 115, 191
Volvulus in Flatulence, 10
Vomiting in Infants, 195
Vulvo-Vaginitis, 187

Warts, 78
Wasps, stings of, 59
Water Enemata, 246
Water, Hot, in Bilious Attack, 9, 14
—— in Obesity, 239
Weakness due to Obscure Diseases, 148
—— **and low Blood Pressure**, 150
Weather and Bilious Attacks, 9, 14
—— and Corns, 81
Weir-Mitchell System, 154
—— —— in Enteroptosis, 46
West Australian Blister Plant, rash from handling, 66
Whiskey as a beverage, 229
Whitlow, 77
Wine as a stimulant, 232
Wines, maturation of, 229
—— varieties of, 228

Xanthelasma, 178
Xerodermia Pigmentosa, 69

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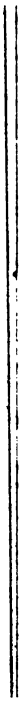

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